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TYPEWRITING IN THE WRITTEN COMMUNICATION

ACTIVITIES OF THE FIFTH GRADE

DISSERTATION

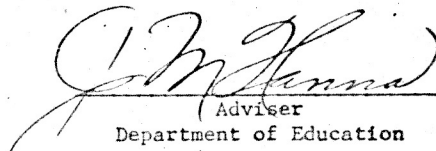
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CHAPTER I

THE PROBLEM

This investigation was concerned with the development of materials for the teaching of typewriting at the fifth-grade level, and with the possible integration of typewriting ability in the written activities of the language arts area of the fifth-grade curriculum.

NATURE OF THE PROBLEM

The idea of teaching typewriting in elementary schools is not new. As early as 1916, the typewriter was used experimentally with students in elementary schools.¹ In 1929-1930, a two-year experiment involving typewriting in elementary schools was conducted in eight cities throughout the United States.²

Recently there has been renewed interest in the use of the typewriter by elementary school students. Two leading typewriter manufacturers have financed studies conducted by major universities within the past four years. Most of these studies have been concerned with determining whether or not students in grades one through six could master the operation of the typewriter. Some attempts have been made to measure the gain or loss of typists in certain subject areas, but no study has

¹George E. Freeland, "A Year's Study of the Daily Learning of Six Children," Pedagogical Seminary, XXVIII (June, 1921), 97-115.

²Ben D. Wood and Frank N. Freeman, An Experimental Study of the Educational Influences of the Typewriter in the Elementary School Classroom (New York: The Macmillan Company, 1932), 1-214.

yet dealt with the use of instructional materials designed especially for the grade in which typewriting was being offered in the elementary school. No study has concentrated upon the directed use of the typewriter as a tool of written communication.

PURPOSE OF THE STUDY

The purpose of this study was to develop instructional materials for use in teaching touch typewriting to fifth-grade students and to direct the use of typewriting skill in accomplishing some of the written communication activities of the language arts area of study.

To accomplish the purpose of this study, answers were sought to the following questions:

1. Can instructional materials appropriate for use on the fifth-grade level be prepared wherein accepted practices in typewriting methodology and fifth-grade vocabulary and language arts skills may be brought together?
2. Can the fifth-grade teacher successfully teach touch typewriting without special training in typewriting methodology?
3. Can fifth-grade students be guided toward the utilization of the typewriter as a basic tool of written communication and, if so, in what ways may typewriting skill be so used?
4. Can typewriting be included in the present fifth-grade curriculum without the serious impairment of current offerings?
5. Will the learning of typewriting at the fifth-grade level affect the general educational development, the handwriting speed and quality,

the spelling proficiency, and the quantity and quality of written work of students?

Other related questions were considered in the various phases of the study.

IMPORTANCE OF THE STUDY

Previous research has shown that elementary school students can learn to operate the typewriter at speeds of double or more than their longhand writing ability. The growth of typewriting for personal use in junior and senior high schools has indicated an increased interest in the typewriter as an instrument for creative writing. The body of knowledge to be mastered in school continues to increase, but at the same time criticism of the schools for not teaching the so-called "basics" continues to mount. If students can be taught to write as creatively and faster on the typewriter than in longhand, the time saved could be devoted to studying other subjects.

It is believed that the study reported here will have implications for all those concerned with the education of children.

LIMITATIONS OF THE STUDY

The instructional materials prepared for use in the experimental part of this study were designed to train fifth-grade students to operate the typewriter by touch control with speed, accuracy, and ease. The degree of skill desired was only that which would enable students to accomplish some of the written activities of the language arts area. No attempt was made to achieve vocational proficiency.

The experimental part of the study was limited to students in three fifth-grade classes located in three schools. Teachers participating in the experimental part of the study were all rated above average by the school administrators concerned.

Manual portable typewriters were used in the study. No special furniture and equipment, other than typewriters, were used.

METHODS USED FOR THE STUDY

Library research was used in the development of instructional materials. Surveys of the literature were made to determine accepted practices in typewriting methodology and in vocabulary usage and desirable practices and standards in the fifth grade language arts program.

The matched-pair grouping of students was used in order to measure the results of the experimental use of the typewriter. Experimental and control students were matched on seven bases. Although experimental students came from three fifth-grade classes and control students came from six fifth-grade classes, for the purpose of reporting the study they are treated as only two classes, an experimental group and a control group.

ORGANIZATION OF THE STUDY

This report of the study is organized in the following manner. An introduction to the study is given in Chapter I. A review of research related to the present study is given in Chapter II. Methods and materials used in the preparation of the instructional materials are described in Chapter III. The procedures followed and the scholastic setting for the experimental part of the study are given in Chapter IV.

The experimental use of the typewriter in the classroom is described in Chapter V. The findings resulting from the study are given in Chapter VI. A summary of the findings, conclusions drawn, and recommendations are given in Chapter VII.

A bibliography of pertinent reference materials follows the text of the study. A copy of the instructional materials and the explanatory notes for teachers are given in Appendix A. Four photographs illustrating the use of physical facilities in the classrooms are given in Appendix B. Samples of various types of work accomplished by students on the typewriter are given in Appendix C. Special word lists, tests, and evaluation forms used in the study are given in Appendix D. Three tables depicting the detailed statistical treatment of the data which resulted from the study are given in Appendix E.

CHAPTER II

RELATED RESEARCH

A review of literature pertaining to the teaching of typewriting in elementary schools reveals no attempt to prepare instructional materials especially designed for elementary school students. Although there have been a number of reported research studies (see Bibliography), only three appear to be of such a character to require reporting as part of this study.

Each of these three studies was sponsored by typewriter manufacturers and supervised by staff members of institutions of higher learning. While the basic pattern of matched pairs of students was used in each of the studies, the methodology employed, the instructional materials used, and the results reported vary. Those parts of each of these studies pertinent to the present study are reported in the following discussions.

THE WOOD-FREEMAN STUDY

During the period 1929-1931, Wood and Freeman¹ conducted a study in 51 schools located in twelve cities in eight states. The purpose of the study was to measure the educational influence of the typewriter in the elementary school program. Students in grades kindergarten

¹Ben D. Wood and Frank N. Freeman, An Experimental Study of the Educational Influences of the Typewriter in the Elementary School Classroom (New York: The Macmillan Company, 1932), 1-214.

through six were used, being paired with similar students for control purposes. Portable typewriters were available in each experimental classroom, and all students were given an opportunity to type each week. No attempt was made to teach touch typing, and little emphasis was placed on speed or control. Students were permitted to "hunt and peck" (the system in which the typist visually locates a key and then types it with any finger) and use one or as many fingers as they desired. The regular classroom teacher was in charge of the typing program; in many cases the teacher had not studied typing. Careful measurement of both the experimental and control students was accomplished at the beginning and at the end of the experimental use of the typewriters.

During the first year in which typewriters were used, students achieved typing speeds approximating their handwriting speeds with errors ranging from three to six per cent. The speeds obtained during the second year advanced little beyond those of the first year. Handwriting quality and speed gained by the experimental and control students were so nearly equal that the researchers concluded that typewriting had no adverse effect on handwriting. In the area of creative writing, the study showed that typing had a positive effect with regard to the quantity of original work produced. The most significant gain of the experimental students was in the area of spelling improvement, and small, less significant, gains were reported in the areas of geography, word meaning, language usage, paragraph meaning, and arithmetic computation.

The study was sponsored by the Typewriter Educational Research Bureau and was conducted by staff members of Columbia University.

THE UNIVERSITY OF NORTH DAKOTA STUDY

In the summer of 1958 the University of North Dakota conducted a study in typewriting with 24 students who had just completed the third or fourth grades.² The purposes of the study were (1) to determine whether or not youngsters at this age level could learn to typewrite by touch and (2) to ascertain the extent to which typewriting could be used as an instrument to promote the learning process. The class was conducted in two 25-minute periods each day for eight weeks. Instruction was given by Dr. John Rowe, regarded as a leading authority on typewriting methodology. Instructional materials were adapted from a high school typing textbook of which Dr. Rowe is co-author.

This study established that students about to enter fourth and fifth grades could master touch typing. At the end of the study, speeds ranging from 24 to 80 gross words a minute on practiced material had been achieved. Errors averaged 1.777% for all students on timed writings, but one-third of the students typed for one minute without errors.

Findings in other areas showed that the average typing speed of students was 42 words per minute as compared with the average handwriting speed of 11.6 words per minute. During the eight weeks of the study, vocabulary development of students increased seven months and reading comprehension increased four months.

²John L. Rowe, "An Experiment in Teaching Portable Electric Typewriting to Third and Fourth Grade Students," The College of Education Record (Grand Forks: The University of North Dakota, 1958).

This study was financed by the Smith-Corona Typewriter Company and it was widely publicized throughout the United States. Electric portable typewriters (actually portable typewriters with electrified keyboards and manual operative parts) were used in the study.

THE ROYAL MCBEE STUDY

Financed by the Royal McBee Corporation, this study was begun in the 1958-1959 academic year.³ It was conducted at Boston University, Columbia University, and the University of Illinois. Each institution pursued its own independently developed research plan, but each had the common purpose of studying the influence of the manual portable typewriter on the educational development of elementary school children in basic areas of the school curriculum.

The study at Columbia University was conducted in one fifth-grade class. Students in the class were matched with control students from two other fifth-grade classes in the same school. Typewriters were available for each student. Instruction was given in two 20-minute periods daily for five weeks and thereafter for one 20-minute period for nine weeks. A high school typing textbook was used, and the instructor was a high school typing teacher. The study covered one semester, from February until June. After 31 2/3 hours of formal instruction students had achieved typing speeds ranging from 20 to 80 gross words a minute on practiced material during tests of one minute duration. An average of two errors per student was made in typing.

³ Albert L. Ayars, The Manual Portable Typewriter as an Instructional Tool in the Elementary School Classroom, A Composite Report (Port Chester, N. Y.: Royal McBee Corporation, 1960).

Students were able to type at rates which exceeded their handwriting rates and, in most cases, typing rates were approximately two to three times their handwriting rates. Longer and more comprehensive reports in subjects such as English and social studies were produced by the experimental students. This study produced no evidence that the use of the typewriter had any statistically significant effect upon the achievement of students in the language arts area.

The Boston University study was conducted in three public school systems. Fourteen fourth- and fifth-grade experimental classes were used and students were matched with control students from similar classes within the school systems. Most of the 14 classrooms had a ratio of one typewriter to three students. Only three of the experimental teachers had experience with touch typewriting. High school typing textbooks were used, and instruction was given for two 20-minute periods daily for six weeks. The director of this study reports⁴ that the average child matched his handwriting rate only toward the end of the year and that few of the students had any facility on the keyboard at the end of the formal practice lessons. Most of the students learned to type through "hunt and peck". While this study shared the common objective concerned with the effect of typewriting on school achievement, the director reported that it actually was the effect of the experience of learning to typewrite on school achievement. The experimental students registered slightly greater gains in most subjects than did the control students at the

⁴ Letter from Dr. Donald D. Durrell, Professor of Education, Boston University, Boston, Massachusetts, January 26, 1960.

fifth grade level, but losses of achievement were noted at the fourth grade level. Neither gains nor losses were statistically significant.

The University of Illinois study was conducted in three schools in one fourth-grade class and two fifth-grade classes. No attempt was made to match experimental students with control students. Rather, measurements were taken of the entire class of experimental students and an entire class of control students, and the classes were studied as classes. The formal typewriting instruction was given by the regular classroom teachers, none of whom were experienced in touch typing. At the end of 18 weeks, students in the three classes had achieved an average speed of 18 gross words a minute on practiced material. This study was planned to extend over three school years. It was concluded in June, 1961. Data showing final results of the study are not yet available.

In each of these three studies, special furniture was used in the elementary school classroom. In two of the studies the regular classroom teacher provided instruction in typewriting. Only in one study was touch typing taught with emphasis on speed and control.

In addition to the three major studies reviewed here, there have been numerous attempts to introduce typewriting in the elementary school. Hutchings⁵ reported in 1950 that a survey of all states revealed that 80 schools in 20 different states had taught typewriting in elementary schools under varying conditions. The survey indicated

⁵Mabel M. Hutchings, "A Study of Typewriting as Offered in Elementary Schools" (unpublished Master's thesis, Northwestern University, Chicago, 1950).

that such special uses of the typewriter as machines equipped with large type for partially seeing students had been particularly successful.

SUMMARY

Characteristics of the studies reported here which are pertinent to the present study may be summarized as follows: (1) No instructional materials specifically designed for elementary school students have been used in any attempt to introduce typewriting in the elementary school. (2) Most attempts have utilized the matched pairing of students in order to establish control. (3) Efforts to teach elementary school students to typewrite have not always used touch typing techniques; when touch typing has been taught, however, a useful typing ability has resulted. (4) Elementary school teachers without experience in touch typing have often been used in providing typing instruction, but they have not achieved an appreciable facility. (5) While all studies reviewed sought to measure the influence of the typewriter on the academic achievement of elementary school students, little effort has been made to integrate typewriting ability with established subjects. (6) Fourth-grade students have not mastered typing as successfully as have fifth-grade students.

CHAPTER III

PREPARATION OF INSTRUCTIONAL MATERIALS

In preparing instructional materials for teaching typewriting at the fifth-grade level, two separate areas had to be considered. First, any instructional materials prepared must follow accepted typewriting methodology. Philosophical and psychological approaches to the teaching of typewriting had to be adapted to the needs of the elementary school students who were to be used in the experimental part of the study. Second, it was essential that the instructional materials use a vocabulary with which elementary school students were familiar. It was equally essential that the instructional materials incorporate knowledges normally learned in the fifth grade in those areas to be covered in typewriting.

The instructional materials prepared were grouped into four units. Each unit is discussed in this chapter, and a copy of each unit is included in Appendix A. Accompanying each unit was a set of instructions for teachers. These instructions also appear in Appendix A.

UNIT I: LEARNING TO TYPE

The purpose of this unit was to teach the touch control of the typewriter keyboard. This involves the use of all fingers by the typist without looking for the keys before striking them.

The first step in preparing the unit involved determining the method to be used in introducing the keyboard. Several plans have been used in typewriting textbooks to teach the keyboard. The "key-banks"

plan, in which the home row of keys (the second row up from the bottom which the typist uses as a home base from which to reach all other keys) is presented first, followed by the entire third row of keys, followed by the bottom row of keys, was one of the early methods of presenting the keyboard. The major difficulty encountered with this plan was the problem of providing early word and sentence materials. The "first-finger-first" plan, in which all letters typed by the index finger are learned first, followed by all letters typed by the second finger, and so on until all letters are taught, has been used widely. Students trained under this plan, however, have been found to make numerous errors of the same-finger-alternate-hand type, such as striking the letter i (properly typed by the second finger of the right hand) for the letter e (properly typed by the second finger of the left hand). Russon and Wanous¹ discuss these plans quite fully and then present the "skip-around" plan in which the home row keys are taught first and then other keys presented vertically from one or another of the home row keys.

The "skip-around" plan consists of two main steps. First, the home row keys are taught, usually the first day. Sufficient drill is provided to give the beginning typist a feeling of security in establishing a home base from which to work. Next, all new keys following the home row are presented with the order of presentation being determined by (a) some left- and some right-hand strokes presented together, (b) some

¹Allien R. Russon and S. J. Wanous, Philosophy and Psychology of Teaching Typewriting (Cincinnati: South-Western Publishing Company, 1960), pp. 173-190.

easy reaches and some not-so-easy reaches presented together, (c) some first- and some second-finger keys presented together and some third- and some fourth-finger keys presented together, and (d) some upward reaches and some downward reaches presented together.

The "skip-around" plan of presenting the keyboard usually involves the introduction of two to four new letters each day after the home row is presented. However, most typewriting textbooks are designed to be taught in periods ranging from 40 minutes to one hour per lesson. Because of the success in mastering typing reported in the University of North Dakota and Columbia University studies, it was decided to follow their plan of devoting approximately 25 minutes to each lesson. Accordingly, the instructional materials were designed to include the presentation of only one new letter in each lesson.

The second step in preparing the unit involved determining the order in which new letters would be introduced after the home-row keys had been taught. As a preliminary to this decision, a survey of seven typewriting textbooks² was made to determine the sequence in which new keys were presented. No discernible pattern was found in the seven textbooks. One book presents the letter h immediately following the

²Fred S. Cook et al., Junior High Typing (New York: McGraw-Hill Book Company, Inc., 1959); D. D. Lessenberry, T. James Crawford, and Lawrence W. Erickson, 20th Century Typewriting (7th ed.; Cincinnati: South-Western Publishing Company, 1957); D. D. Lessenberry and S. J. Wanous, College Typewriting (6th ed.; Cincinnati: South-Western Publishing Company, 1959); Alan C. Lloyd et al., Gregg Typewriting for Colleges (New York: McGraw-Hill Book Company, Inc., 1957); Roger H. Nelson, Accelerated Typing (Salt Lake City: Business Education Publishers, Inc., 1959); Charles G. Reigner, Rowe College Typing (2d ed.; Baltimore: The H. M. Rowe Company, 1959); and S. J. Wanous, Personal Typewriting (Cincinnati: South-Western Publishing Company, 1959).

home-row keys; one book presents the letters g, e, and u immediately following the home-row keys; one book presents the letters e, r, t, and i immediately following the home-row keys; the other four books skip around from left-hand keys to right-hand keys and from the row above home row to the row below home row. No author gives any reason for the sequence of presentation used in the seven textbooks.

Since the survey of standard typewriting textbooks indicated that no particular sequence need be followed in presenting new letter keys, consideration was given to the source of material from which drill words would be taken for use in the instructional materials. In 1951, James A. Fitzgerald published his basic vocabulary list containing 2,650 words which, with their repetitions, comprise approximately 95% of the writing vocabulary of normal individuals (both children and adults).³ In addition to this list of commonly used words, Fitzgerald also provided a list of the 222 words most frequently misspelled by elementary school children. Each word in the list is coded to show the grade in which it is considered a problem. From the list of 222 spelling boners (the term used to indicate words frequently misspelled by elementary school students), the 100 words most often misspelled by fifth-grade students were extracted. This resulting list of 100 words was analyzed to determine (1) the letters needed to type each word, (2) the number of letters in each word, and (3) whether the word could be typed with only the left hand, or only the right hand, or with both hands. The frequency of each letter of the alphabet, grouped by vowels and consonants, was

³James A. Fitzgerald, A Basic Life Spelling Vocabulary (Milwaukee: The Bruce Publishing Company, 1951).

noted for all of the 100 words. After eliminating those letters which appear on the home-row keys of the typewriter (a, s, d, f, j, k, and l), the frequency of use of each letter was used as the determining basis for introducing each new letter of the keyboard. For example, the letter e appeared more frequently than any other letter in the 100 words; e was therefore presented in Lesson 2 immediately following the home-row letters.

Not every letter after the home-row letters was introduced in its exact frequency order. Some letters were delayed one lesson in order to distribute evenly the new letters from left hand to right hand. An example of this appears in Lessons 4 and 5. Lesson 3 introduced the letter o which is typed with the right hand. The letter with the next highest frequency was i, but this is also typed with the right hand. Following i in the frequency list was the letter r. The letter r is typed with the left hand. In order to achieve a balance between left-hand and right hand letters, the o was introduced in Lesson 3 (right hand), the r (left hand) was introduced in Lesson 4, and the i (right hand) was introduced in Lesson 5.

The third step in preparing instructional materials for Unit I consisted of organizing lines of drill which would automatize the touch control of the typewriter keyboard. Since five of the seven textbooks reviewed utilized drill consisting of three-strokes-and-one-space in the first section of the early lessons, it was decided to follow that pattern.

Rinsland's study of the vocabulary of elementary school children is the most recently published list of words regarded as basic to all

grades of the elementary school.⁴ The list contains the 14,571 words most frequently used by students in grades one through eight. Each word in the alphabetical list is coded to indicate its frequency of use for each grade. The 500 words most common to the fifth grade vocabulary were extracted. These 500 words were analyzed and divided into lists of two-, three-, four-, five-, and six-letter words and words of more than six letters. Each list was then arranged into three groups: those which could be typed with only the left hand, those which could be typed with only the right hand, and those which required the use of both hands for typing. The 500 words most common to the fifth grade vocabulary thus arranged were used in preparing the drill exercises essential to each typewriting lesson.

After the sequence for introducing each letter was determined, separate cards were prepared for each lesson to be developed. At the top of the card all letters previously learned plus the letter being introduced in the current lesson were typed. On the card were listed two groups of words. The two groups were (1) all words from the Fitzgerald list of 100 spelling boners which could be typed with the letters available and (2) all the words from the Rinsland list of 500 words most common to the fifth grade which could be typed with the letters available. Both lists of words were grouped according to the number of letters in each word and also according to how they are properly typed (left hand only, right hand only, or both hands). The

⁴ Henry D. Rinsland, A Basic Vocabulary of Elementary School Children (New York: The Macmillan Company, 1945).

words used in each lesson for drill in both lines of words and in phrases and sentences were taken from these two groups of words.

Not every word used in drill materials in the lessons of this unit come from either the Fitzgerald or Rinsland lists described above. At times, in order to provide two or three lines of drill words requiring the use of the new letter introduced in a particular lesson, it was necessary to use words listed in the Rinsland study as common to the third- or fourth-grade vocabularies.

The 500 words from the Rinsland list were used in one other way in preparing the instructional materials. Certain directions to the students had to be written out, and an effort was made to state the directions in words common to the fifth grade vocabulary. This was not always possible, however, despite the fact that technical words were avoided whenever possible. For example, the introductory lesson contained a reference to the typewriter platen. The word platen is not in the vocabulary of elementary school children, but the word cylinder (by which the platen may be called) is in the vocabulary of some fifth-grade students. Cylinder does not appear in the first 9,000 words of the fifth grade vocabulary, but it was used in lieu of the more technical term platen.

Unit I consists of an introduction to typing and 28 lessons. The introduction covers the home-row keys and the operation of the space bar and carriage return lever. Lesson 1 contains drill on the home-row keys. Lessons 2 through 5 each introduce one new letter and provide drill on all letters previously learned. Lesson 6 introduces the typing of capital letters typed with the right hand; it is a review lesson

which was included at the request of the three experimental teachers. Lessons 7 through 19 each introduce one new letter and provide drill on all letters previously learned. Lesson 10 introduces capital letters typed with the left hand. Lesson 20 introduces two new letters, x and z, and completes the lettered portion of the keyboard. Lessons 21 and 22 are review lessons. Lessons 23 through 25 introduce the numbers on the typewriter. Lessons 26 and 27 introduce all other symbols on the typewriter. Lesson 28 introduces the following operative parts of the typewriter: margin controls, tabulator, tabulator set and clear, line space regulator, back spacer, ribbon indicator, and shift key locks. Lesson 28 also contains a problem, designed as an exercise in artyping, which involves vertical and horizontal centering and the use of the tabulator, back spacer, ribbon control, and shift key locks.

UNIT II: IMPROVING TYPING SKILL

This unit was designed to further automatize the typing of students while increasing their typing speeds and improving their control. It consists of ten lessons. The first six lessons contain warm-up exercises referred to as reviews. These reviews were designed to improve rhythm through the typing of lines of two-, three-, four-, and five-letter words; to automatize key locations through the typing of home-row drills and alphabet drills; to improve shifting techniques through the typing of drills involving lower-case letters immediately followed by upper-case letters (aA, bB, cC, for example); and to improve the typing of connected thoughts contained in paragraphs in each lesson through the previewing of certain key words contained in the paragraphs. All of the material contained in the drills and paragraphs is original although

some of the paragraphs, notably those in Lessons 3, 6, and 8, were adapted from stories and textbooks for elementary school students.

UNIT III: THINKING AT THE TYPEWRITER

This unit was designed to lead students into composing their own thoughts on the typewriter. It contains nine lessons. The first five lessons were prepared as developmental steps into writing creatively on the typewriter.

Lesson 1 consists of seven simple questions and required that answers be typed. Questions were of the type that could be answered with one or a few words; only one question involved the typing of a complete sentence. All questions pertained to the present. Lesson 2 again uses questions which had to be answered on the typewriter, but the questions required more thinking on the part of students since they all pertained to events, persons, and places from the past and required decisions as to preferences of the students. Lesson 3 presents descriptions of persons and stresses the type of information which is usually included in such descriptions. Lesson 4 attempts to establish a need for students to type a complete description of a winter sport activity. Lessons 5 through 9 contain lead sentences which were designed to serve as a descriptive beginning to any type of activity. These two-or-three-sentence beginnings were followed by a partial sentence ending with such words as "suddenly," "and," "when," and so on. Students were directed to copy the lead sentences and then continue writing when the lesson materials stopped.

The ideas used in developing this unit were not original, nor did they come from any particular source. The writer had used the procedures

involved in Lessons 1 through 4 in teaching typing to fourth- and fifth-grade students previously. The lead-in sentences idea came out of discussions with several elementary school teachers and college professors of elementary education. This seems to be a generally accepted practice in teaching creative writing.

UNIT IV: TYPING LETTERS

The purpose of this unit was to acquaint students with the correct form and style for typing letters. The unit contained six lessons. No effort was made to present the several varied styles of business letters; rather, one letter style was chosen which could be used for typing both personal and business letters.

Wanous suggests the use of the modified-block with indented paragraphs style for both personal and business letters.⁵ Cook and others suggest the use of the same style although they refer to it as semi-blocked.⁶ They state that while it is the most popular style for typing personal letters, it is the second most popular style for typing business letters. This was the style selected to present in this unit.

Lesson 1 of this unit presents a review of the parts of a letter. Pollock, Forester, and Soifer list five parts of a letter which should be mastered in fifth grade.⁷ These parts are described briefly in

⁵S. J. Wanous, Personal Typewriting (Cincinnati: South-Western Publishing Company, 1959), p. 113.

⁶Fred S. Cook et al., Junior High Typing (New York: McGraw-Hill Book Company, Inc., 1959), p. 213.

⁷Thomas C. Pollock, John J. Forester, and Israel Soifer, Using Language (New York: The Macmillan Company, 1960), pp. 122-123.

Lesson 1, and then a sample copy of a typed personal letter was given. Lessons 2 and 3 contain directions for students to type personal letters. Lesson 4 introduces business letters and contains an explanation of the differences between personal and business letters. An example of such differences is the inside address which is included in business letters but not in personal letters. Lesson 4 contains a sample of a typed business letter, and Lessons 5 and 6 contain directions for typing two business letters. Ideas for the letters written by students in Lessons 2, 3, 5, and 6 came from Strickland's list of suggested letter writing activities for fifth-grade students.⁸

EXPLANATORY NOTES FOR TEACHERS

Accompanying each unit of instructional materials was a set of notes for teachers. These were prepared to explain in detail each step to be followed in teaching the lessons. The notes included explanations of techniques presented in lessons and technical terms used in the directions to students.

The notes for teachers were prepared after the corresponding lessons had been completed. Each lesson was studied to determine which parts of it would need to be clarified for a teacher who had not been trained as a typewriting teacher. The notes were written in informal language; an attempt was made to ensure that any teacher who had studied touch typewriting could study the notes and understand

⁸ Ruth G. Strickland, The Language Arts in the Elementary School (2d ed.; Boston: D. C. Heath & Company, 1957), p. 319.

the objective and teaching techniques involved in each lesson. A copy of the notes for teachers is included in Appendix A.

SUMMARY

The instructional materials prepared for use in the experimental part of this study consisted of the following units: Unit I: Learning To Type, containing 28 lessons; Unit II: Improving Typing Skill, containing 10 lessons; Unit III: Thinking At The Typewriter, containing 9 lessons; and Unit IV: Typing Letters, containing 6 lessons. In preparing the instructional materials, an attempt was made to combine accepted practices in typewriting methodology with vocabulary and knowledges pertinent to the fifth grade. Explanatory notes for teachers were prepared to accompany the lessons.

CHAPTER IV

PROCEDURES USED AND SCHOLASTIC SETTING FOR THE EXPERIMENTAL PART OF THE STUDY

During the summer of 1960 the assistance of the Office of Field Experiences of the College of Education, The Ohio State University, was sought in selecting a school system and obtaining permission to conduct the experimental part of the study. That office contacted one suburban school system in the greater Columbus, Ohio, area, but the school administration declined to have the experiment conducted there. Next, the director of the Office of Field Experiences contacted the Upper Arlington School System and permission was obtained to conduct the study in three elementary schools in that system.

THE SCHOOLS

Upper Arlington is a residential community located approximately five miles northwest of Columbus, Ohio. It is in the upper-middle and upper socioeconomic class. There are a total of five public elementary schools within the corporate limits of the community. Barrington Road Elementary School, Fishinger Road Elementary School, and Wickliffe Road Elementary School were chosen for the experiment. These three schools were selected after consultation with the supervising principal of elementary schools for the system and after consideration of such factors as qualifications of fifth-grade teachers assigned to each school, attitudes of school administrators toward the proposed

experiment, and the number of sections of the fifth grade available in each school.

Barrington Road Elementary School serves the oldest section of Upper Arlington. The entire neighborhood served by this school consists of large, old family homes. Many of the homes are now occupied by second- or third-generation Upper Arlington families, young couples who have children of elementary school age. Few of these homes have been sold outside the family of the original owners. The Barrington Road Elementary School has six sections of fifth grade.

Fishinger Road Elementary School serves a neighborhood which includes family homes and apartment buildings. The neighborhood is one of the newest sections of Upper Arlington; practically all of the homes and apartments are less than ten years old. The Fishinger Road Elementary School has three sections of fifth grade.

Wickliffe Road Elementary School serves a neighborhood which includes many homes that are more modest than those in the neighborhoods served by the other two schools. This school is located near the northwest corporate limit of Upper Arlington. Some of the students attending this school live on farms. The Wickliffe Road Elementary School has three sections of fifth grade.

THE TEACHERS INVOLVED IN THE STUDY

The teachers selected for the three experimental classes were chosen in consultation with the supervising principal of elementary schools and the principals of the three schools being used. All three teachers had demonstrated professional interest and initiative through advanced study, travel, and participation on various in-service school committees. Each

teacher had gained a reputation for concern with the welfare of children. One teacher had a total of two years of teaching experience, one year of which had been spent teaching fifth grade in the present school assignment. Another teacher had a total of two years of teaching experience, both of which had been spent teaching fifth grade in the present school assignment. The third teacher had a total of ten years of teaching experience. She had taught in the present school for five years, two years of which had been spent teaching fifth grade. Each of the three teachers held a bachelor's degree from an institution accredited for the training of teachers.

After tentative selection of the three teachers had been made, a conference was held with each teacher individually. Each conference lasted for approximately three hours, and during the conference the entire study was outlined and explained. Previous related studies were discussed and sample lessons with notes for teachers were presented. All questions asked by the teachers were answered. After the three individual conferences were concluded, a group meeting was held with all three of the teachers. This was an informal meeting during which the three teachers became acquainted and discussed the proposed experiment. An attempt was made to discuss some of the problems likely to be encountered during the experiment. A good working relationship was established at this conference among the teachers and the researcher. This later led to an uninhibited sharing of common problems, solutions, and applications of typewriting ability.

Teachers of the classes from which control students were obtained were chosen primarily on the basis of their school assignment. In order

to obtain control teachers as close in ability to the experimental teachers as possible, conferences were held with the supervising principal of elementary schools and the principals of the three schools involved, and a tentative selection of control teachers was made. In order to lessen teacher differences, it was decided to use control students from at least two classrooms in each school. Thus the selection of control teachers in two of the schools was mandatory. In the other school, the two teachers suggested by the supervising principal and the school principal were asked to serve as control teachers. As a further check on the demonstrated abilities of the control teachers as compared with the experimental teachers, the supervising principal and the school principals were asked to equate the three teachers selected for the study in each school. In two schools the teachers were rated equal. In the third school one of the control teachers was rated slightly lower than the other control teacher and the experimental teacher. This lower rating was attributed to the fact that the teacher had only one year of teaching experience. This lack of teaching experience was lessened, in the opinion of the administrators, by the fact that the teacher was a mature woman of approximately 40 years of age. The plan of the study was explained to the control teachers in individual conferences.

CHARACTERISTICS OF STUDENTS INVOLVED IN THE STUDY

There was a total of 80 students enrolled in the three experimental classes. One of these was a brain-damaged child who had never before attended public school. He lacked the muscular coordination to learn touch typewriting and was therefore not used in the study although he attempted to participate in typing activities. An effort was made to

match each of the remaining 79 students with a student from one of the control classes. Experimental and control students were equated on the basis of grade placement, school attending, sex, age, intelligence quotient, spelling ability, and creative writing ability. Using these seven bases, a total of 48 students were matched. Matched-pair groups are shown in Table 1.

TABLE 1
THE EXPERIMENTAL AND CONTROL GROUPS EQUATED ACCORDING TO SEX, AGE,
INTELLIGENCE QUOTIENTS, SPELLING ABILITY, AND
CREATIVE WRITING ABILITY

PAIR NUMBER ^a	SEX		AGE IN MONTHS		INTELLIGENCE QUOTIENT		SPELLING ABILITY		CREATIVE WRITING	
	X ^b	C ^b	X	C	X	C	X	C	X	C
1	M	M	120	123	116	120	19 ^c	21 ^c	5 ^c	4 ^c
2	M	M	123	119	120	120	23	23	4	3
3	M	M	127	124	106	108	25	25	6	6
4	M	M	118	121	100	100	24	25	3	3
5	M	M	118	119	127	126	24	23	9	9
6	M	M	125	127	129	132	24	24	7	6
7	M	M	119	120	137	133	22	22	5	4
8	M	M	120	123	139	140	23	24	6	6
9	M	M	126	127	115	114	25	25	7	6
10	M	M	126	124	109	110	23	24	5	4
11	M	M	119	121	133	132	25	25	6	6
12	M	M	126	125	103	102	24	23	6	6
13	M	M	124	127	130	131	24	24	4	5
14	M	M	136	134	114	113	25	24	8	7
15	M	M	118	123	130	133	23	25	6	6
16	M	M	123	126	140	143	23	24	6	7
17	M	M	120	118	119	120	25	24	6	7
18	M	M	123	124	115	115	24	24	7	7
19	M	M	128	127	117	117	25	23	7	7
20	M	M	129	129	101	102	22	20	6	6
21	M	M	123	125	114	119	20	21	6	7
22	M	M	121	119	123	121	21	21	5	4
23	M	M	126	122	110	113	24	25	6	7
24	M	M	125	131	119	124	23	25	7	6
25	M	M	122	120	121	118	21	22	6	6
26	F	F	125	119	110	115	17	18	6	6
27	F	F	128	126	130	132	24	24	9	9
28	F	F	129	123	119	123	23	22	9	9
29	F	F	127	122	120	121	25	23	6	5
30	F	F	124	124	126	127	25	25	9	8

TABLE 1--Continued

PAIR NUMBER	SEX		AGE IN MONTHS		INTELLIGENCE QUOTIENT		SPELLING ABILITY		CREATIVE WRITING	
	X	C	X	C	X	C	X	C	X	C
31	F	F	125	121	130	126	25	25	7	6
32	F	F	128	122	106	110	22	22	5	5
33	F	F	120	119	124	124	25	25	8	7
34	F	F	119	120	116	118	25	24	8	8
35	F	F	127	126	111	113	25	25	5	5
36	F	F	120	122	113	113	24	24	5	6
37	F	F	125	124	129	126	24	24	7	6
38	F	F	123	128	132	132	25	25	6	6
39	F	F	120	121	125	124	25	25	6	6
40	F	F	124	126	126	127	24	25	4	5
41	F	F	119	125	124	124	25	24	7	7
42	F	F	121	124	121	123	25	23	5	5
43	F	F	118	121	121	117	24	24	6	7
44	F	F	124	123	130	132	25	25	6	5
45	F	F	124	122	111	112	25	25	6	6
46	F	F	129	129	130	131	25	25	9	9
47	F	F	133	137	80	84	22	22	4	4
48	F	F	120	123	114	111	23	22	6	6
Ranges:			118	118	80	84	17	18	3	3
			to	to	to	to	to	to	to	to
			136	137	140	143	25	25	9	9
Means:			123.7	123.9	119.5	120.2	23.6	23.6	6.2	6.1

^aThis same rank order of numbers to identify the students (matched pairs) is used in all tables included in this report.

^bX designates students in experimental classes and C designates students in control classes.

^cSpelling score is number of correct words out of a possible 25. Creative writing score is number of points out of a possible 9.

All students enrolled in classes used in the study were in fifth grades. Each pair of students came from the same school. Chronological age as of October 1, 1960, was determined from school records. Intelligence quotients were obtained from school records; during the first month of the school year all students had been tested on the California Test of Mental Maturity (1957), Long Form.

Spelling ability was determined through the use of a specially designed spelling test. The Fitzgerald list of 222 spelling boners is so coded that the 50 words consistently misspelled in grades two, three, four, five, and six may be extracted.¹ These 50 words were listed in alphabetical order, and every other word (#1, #3, #5, and so on) was used to prepare a spelling test of 25 words. This test formed the basis for determining the spelling ability of each student. The test was administered to the experimental and control groups during January, 1961. Since the instructional materials used by the experimental students had included typing drills stressing the 100 words most frequently misspelled in fifth grade, it was felt that to administer the test at the beginning of the experiment would give the experimental students a marked advantage over the control students, since they would be using the spelling boners more than the control students.

In order to compare the amount of gain or loss in spelling resulting from the experiment, a similar specially constructed spelling test was administered during the first week of June, 1961, to all experimental and control students. This test was constructed by using the words from the list of 50 words most frequently misspelled in grades one through six which had not been used in the first spelling test. Spelling tests were scored by giving one point for each word spelled correctly. The maximum score was 25. The 50 words used in the two spelling tests are shown in Appendix D.

¹James A. Fitzgerald, A Basic Life Spelling Vocabulary (Milwaukee: The Bruce Publishing Company, 1951).

Creative writing ability was determined through the use of a special exercise in creative writing. This exercise consisted of asking each student in the experimental and control classes to write for a period of not more than 15 minutes on one of the following three topics: "If I Had A Day," "The Type of Books I Enjoy Reading," or "What I Like Most About School." The test was administered by the regular classroom teacher who devoted five minutes to explaining each topic to the students. Then, each student wrote, in longhand, on either topic he chose for as long as he desired up to 15 minutes. The first test of creative writing ability was administered in January, 1961. A second special exercise in creative writing ability was developed for use at the end of the experiment. This followed the first exercise in every respect, except that the three topics chosen were: "My Favorite Hobby," "How I'd Like to Spend My Birthday," and "My Plans for Summer Vacation." The amount of time devoted to explaining the topics and to writing were the same as in the first test. This final exercise was administered in the first week of June, 1961.

It was necessary to devise a plan for objectively evaluating the quality of creative writing. A search was made of reference works in the area of creative writing. The objectives of creative writing as propounded by The Commission on the English Curriculum of the National Council of Teachers of English were selected as standards by which the creative writing of students would be evaluated.² The Commission defines the four basic goals in written as well as oral language as (1) ease--

² The Commission on the English Curriculum of the National Council of Teachers of English, Language Arts for Today's Children (New York: Appleton-Century-Crofts, Inc., 1954), pp. 206-258.

approaching writing with confidence and a sense of adequacy; (2) clarity--establishing clear mental concepts and well-formed ideas in writing; (3) suitability--fitting content to purpose in writing; and (4) originality--respecting and expressing one's own thinking.

The first basic goal, ease, can only be judged by those physically present when the writing is done. It was therefore eliminated as a standard for the evaluation of the creative writing involved in this study. The three remaining goals, clarity, suitability, and originality, were used. A form was prepared and duplicated. The form contained brief definitions of the three standards. Below the definitions, columns were provided for marking each writing either below average, average, or above average in each of the three categories (clarity, suitability, and originality). An additional column on the form provided space for a code number by which each writing was identified in the evaluation. A copy of the evaluation form is shown in Appendix D.

After all students had completed their creative writing, each writing was assigned a code number and typed verbatim. The samples of creative writing were then tentatively evaluated by the researcher. Final evaluation was accomplished by six graduate students enrolled at The Ohio State University. All six of the graduate students were experienced elementary school teachers at the intermediate level; one was an elementary school principal. They were all enrolled in a class entitled "Language and Readings in the Elementary School." None of the evaluators were involved in the experimental part of the study.

Each evaluator read and evaluated the creative writings by placing a check mark in the appropriate column under each major heading (clarity, suitability, and originality). Each writing was checked as either below

average, average, or above average in each of these three categories. A point system was used in which one point was allowed for each below average rating, two points were allowed for each average rating, and three points were allowed for each above average rating. Thus a minimum of three points and a maximum of nine points were possible. In cases where the evaluations of the six graduate students differed more than two points from the tentative evaluations of the researcher, the writing was evaluated by another graduate student and the majority rating was used. The evaluator from the six graduate students who evaluated the writings (first and final) of a particular experimental student also evaluated the writings (first and final) of the control student with whom the experimental student was paired. This fact, however, was not known to the persons doing the evaluation until after the evaluations had been completed. The evaluators did not know if their writings came from experimental or control students.

TESTING IN OTHER SUBJECT AREAS

Although only the subjects of spelling and creative writing were used in matching experimental and control students, other subject areas were considered in order to evaluate the overall influence of the type-writer. Measurements were made in the areas of handwriting speed and handwriting quality, reading, arithmetic, science, social studies information, and social studies study skills. Details incident to these measurements are discussed in the following paragraphs.

A sample of the handwriting of each student in the experimental and control groups was taken during January, 1961, and again in June, 1961. Each sample was compared to the Freeman Handwriting Scale and

the quality of the writing determined.³ A numerical value was assigned to each sample of handwriting. Thus the gain or loss in quality of handwriting could be shown. Evaluation of handwriting was made by the researcher.

The handwriting speed of each experimental and control student was determined by counting the actual letters written. The handwriting test lasts two minutes. In order to make a comparison of handwriting and typewriting speeds more meaningful, the method used for computing typewriting speeds was used for calculating handwriting speeds. In this method, one word is considered to be any five letters or a combination of letters and spaces totaling five. Since the handwriting test lasts for two minutes, the handwriting speed per minute was determined by dividing the total words (five letters and/or spaces) by two.

The level of reading ability of the students in the experimental and control groups was recorded prior to and at the conclusion of the experiment. The school system tests all students each year during the first week of June, using the Gates Basic Reading Test, Form 1,⁴ which measures speed, vocabulary, and comprehension. Scores for all students were available and, since all students had been tested at the same time and under like conditions, results of the reading tests administered at the end of the fourth grade were used. In order to determine the amount of gain or loss occurring during the school year in which the experiment was conducted, the results of the reading tests administered

³Freeman Handwriting Measuring Scale (Columbus: Zaner-Bloser Company, 1935).

⁴Gates Basic Reading Test, Form 1 (New York: Bureau of Publications, Teachers College, Columbia University, 1942).

by the school system during the first week of June, 1961, were used. The standard scores obtained on these tests were converted to grade levels since the figure designating grade level is more meaningful to teachers.

The area of arithmetic was measured similarly to reading. The school system tests each student during the first week of June each year, using the Metropolitan Achievement Test, Arithmetic,⁵ which measures abilities in arithmetic fundamentals and arithmetic problems. Scores obtained by the school system's testing program in June, 1960, and in June, 1961, were used. Again in the case of arithmetic, the standard scores achieved were converted to grade levels.

The area of science was measured through the use of the Metropolitan Achievement Test, Science.⁶ This test includes items pertaining to the areas of life science, earth science, physical science, conservation, and health. The first test was administered by the classroom teachers during the first week of January, 1961. The final test was administered by the classroom teachers during the first week of June, 1961. Standard scores obtained from the tests were converted to grade levels.

The area of social studies was measured through the use of the Metropolitan Achievement Test, Social Studies (Social Studies Information and Social Studies Study Skills).⁷ This test actually covers two areas: Social Studies Information, measuring important knowledge

⁵ Metropolitan Achievement Test, Arithmetic--Intermediate (Yonkers-on-Hudson: World Book Company, 1947).

⁶ Metropolitan Achievement Test, Science--Intermediate (Yonkers-on-Hudson: World Book Company, 1958).

⁷ Metropolitan Achievement Test, Social Studies--Intermediate (Yonkers-on-Hudson: World Book Company, 1958).

outcomes of the typical social studies offerings at the fifth-grade level in the areas of geography, history, and civics; and Social Studies Study Skills, measuring the ability to read and interpret maps and information presented in the form of tables, charts, and graphs. The first test was administered by the classroom teachers in January, 1961, and the final test was administered in June, 1961. Standard scores obtained from the tests were converted to grade levels.

SUMMARY

Permission was obtained to conduct the experimental part of the study in three schools in the Upper Arlington School System. Nine teachers were selected, three of whom taught the experimental classes in which typewriting was used, and six of whom taught control classes from which students were matched with those in the experimental classes. A total of 48 students were matched on seven bases. Tests were administered to all students at the beginning and conclusion of the experimental study. Scores for two tests which had been administered at the close of the preceding school year were used; scores on the other tests were obtained after the typewriter keyboard had been covered by the experimental students. This latter was done to reduce the advantage gained by the experimental students from daily typing lines of drills heavily sprinkled with difficult spelling words. In all, experimental and control students were tested in the areas of spelling ability, creative writing ability, handwriting speed, handwriting quality, science, social studies information and study skills, reading, and arithmetic.

CHAPTER V

EXPERIMENTAL USE OF THE TYPEWRITER

The typewriter was introduced into the three experimental classes on Monday, October 3, 1960. Typewriters remained in the classrooms and in the hands of students until the close of school on June 9, 1961. Procurement of typewriters, use of physical facilities, formal instructional procedures, and integration of typewriting skills are discussed in the following paragraphs.

PROCUREMENT OF EQUIPMENT

The first major step in this part of the study involved obtaining a sufficient number of typewriters for use by the students. Accordingly, in June of 1960 a request was made to the Educational Research Committee of the Office Equipment Manufacturers Institute in Washington, D. C., for the loan of portable typewriters. This organization has lent typewriters to school systems for several years. It is their practice to provide machines and a qualified instructor for periods ranging up to one academic semester. The organization is supported in this program by the manufacturers of Smith-Corona, Remington, Royal, and Underwood typewriters. It was the decision of the organization's executive director that typewriters could be made available, but that the machines would include an equal number of the four brands mentioned above. This offer was declined because it was felt that the use of more than one brand of typewriter in a single classroom would needlessly complicate the initial phases of the instructional program.

A request was next made to the Remington Rand Portable Typewriter Division of the Sperry Rand Corporation. That organization agreed to lend a total of 95 portable typewriters for use in the study. All of the typewriters were the Remington Quiet-Riter Eleven model, and they all were equipped with pica type. Each machine came in a carrying case. The machines were shipped to the Upper Arlington School System. After unpacking, each machine was checked to ensure good working condition, and margins were set for a 40-space writing line on each machine. Each machine was labeled with the name of a student; names were on tags attached to the handle of the typewriter carrying case. Machines were then delivered to the three classrooms in which the experiment was to be conducted. Sufficient machines were delivered to each classroom so that each student and teacher had a typewriter, plus one extra one to be used in the event of a breakdown of a machine.

PHYSICAL FACILITIES

Shelves under the windows in each classroom were cleared to provide storage space for some of the typewriters when they were not being used. Additional storage space was provided by clearing all furniture from against two walls in one corner of each classroom. Figure 1 of Appendix B illustrates the methods used for storing typewriters.

Two of the experimental classrooms used individual student desks of the type which are flat on top with an opening on the side next to the student for placing books inside the desk. Chairs in these two classrooms were not attached to desks. Desk heights were adjustable. Figure 2 of Appendix B illustrates the use of this type desk.

The third experimental classroom was equipped with older desks of the type with slanted tops which lift up for the placing of books inside. Chairs in this room were attached to the desks. These desks were originally manufactured with metal posts which could be used to make the slanted desk top remain level. Many of these metal posts had been broken; consequently, small wooden posts were prepared in lengths needed to make the desk top remain level. Figure 3 of Appendix B illustrates the use of this type of desk for typewriting.

The only remaining problem with regard to physical facilities for students was that of chairs of varying heights. Three different heights of chairs were available, but the height differences in the students was such that a few very short children needed even higher seating. In order to provide higher seating, several large books were used in the chairs of the very short students. This was not tried until the second week of typewriting instruction, and there was a noticeable improvement in the stroking ability of the shorter students. Figure 4 of Appendix B illustrates the use of books to raise seating levels.

A demonstration stand was needed for use by the teachers. The typewriter used for demonstrations was first placed on the teacher's desk at the front of the room. The grouping of desks throughout the room made it impossible for all students to see the typewriter used by the teacher. The typewriters had been delivered from the factory in individual cardboard containers which were strongly reinforced. Three of these cardboard containers were used as demonstration stands by the teachers of the experimental classes.

TIME SCHEDULE

Instructional materials had been designed for a period of from 20 to 25 minutes. The first five lessons required from 25 to 30 minutes each, and subsequent lessons were shortened. During the first two weeks of instruction, the researcher was present in each classroom while the students were studying typewriting. This necessitated a staggered schedule between the three schools. After the first two weeks of instruction, the classroom teachers were permitted to change the hour at which typewriting was offered so as to best fit into their schedule. This was essential due to the fact that certain special areas of the curriculum are offered on alternate days only, as in the case of physical education, and certain areas are offered once a week only, as in the case of art.

Each of the three teachers, during the course of the experiment, moved the time at which typewriting was offered from early morning to just-before-noon to just-after-noon to last period in the day. This was done to permit use of the typewriter at whatever time of day the students were involved in written activities.

UNIT I

The first day that typewriters were available in the classroom the researcher explained briefly that the regular classroom teacher would teach students to typewrite. Typewriters were then distributed to all students, and a thorough demonstration was given on the best method for removing the machine from the case, unlocking the carriage, and inserting paper. Each student practiced these operations until sufficient proficiency had been gained. Individual assistance was given

where needed by the classroom teacher and the researcher. A "buddy" system was organized under which two students worked together in removing the typewriter from the case (one student lifted the typewriter while the other student removed the case bottom from the desk so that the typewriter could be placed flat on the desk). After the opening and setting up of the typewriters had been mastered, the cost of one typewriter (\$137.85) was written on the chalkboard and each student was asked to determine the total cost of all the typewriters in the room. This was done to impress students with the need for proper care and handling of the typewriters.

The following day the Introduction to Typing of Unit I was presented by the regular classroom teacher. This lesson required 30 minutes for presentation. Thereafter, beginning with Lesson 1, a lesson each day was presented up through Lesson 20 at which time the lettered portion of the keyboard had been mastered.

At this point, formal instruction was suspended for one week. During the week the students typed each day. Typing activities at this time consisted of daily drills such as the experts' rhythm drill (striking all keys on the home row with alternate hands), and alphabetic drills (typing each letter on the keyboard in alphabetic order), and then such activities as typing spelling lists, typing lists of questions from a textbook, and typing outlines for social studies and science reports. Each teacher had been asked to attempt only the simplest written work with the typewriter at this point. The most successful use of the typewriter at this stage was for typing

spelling lists, but typing speeds were such that this actually took more time than when similar spelling lists were written in longhand.

During the week in which no formal typewriting instruction was held a note was sent to the parents of each student in the experimental group. The note indicated that students would be permitted to take typewriters home on weekends and holidays if the parents would indicate their willingness to accept responsibility for the care of the machines while they were out of the classroom. Except for homes in which portable typewriters were already available, every parent agreed to be responsible for the machines. Thereafter, for the duration of the experiment, students took typewriters home whenever they desired.

Lessons 21 and 22 of Unit I introduced students to timed writings. Each of these lessons required the usual 20 to 25 minutes to cover, and each consists of warm-up drills, and drills involving rapid typing of selected words which appear in the paragraph which is the final part of each of these two lessons. After Lesson 22 had been taught, the paragraph in it was used for timed writings. Students were timed for one minute. Three such timed writings were given, and the best achievement out of the three was recorded. The speeds achieved are shown in Table 2. These speeds were achieved after approximately ten hours of instruction. The best writing was determined by the highest correct words per minute speed. This is obtained by subtracting the total number of errors made from the gross typing speed. Gross typing speed is obtained by dividing the total number of strokes (including spaces) by five. Table 2 indicates both the gross typing speed (the figure on the left side of the hyphen) and the total number of errors (the figure on the right side of the hyphen).

TABLE 2

GROSS TYPING SPEEDS ACHIEVED AND ERRORS MADE ON A
ONE-MINUTE TEST AFTER THE FIRST 22 LESSONS

Student Number	Speed-Errors	Student Number	Speed-Errors
1	12-2	25	11-0
2	13-0	26	13-0
3	9-0	27	11-1
4	13-2	28	17-3
5	8-1	29	15-1
6	12-0	30	18-4
7	13-0	31	16-1
8	14-0	32	11-1
9	12-1	33	19-0
10	17-3	34	20-0
11	17-0	35	19-5
12	15-3	36	14-4
13	13-0	37	11-0
14	18-2	38	24-2
15	10-1	39	20-3
16	16-1	40	13-1
17	22-2	41	25-2
18	14-1	42	13-0
19	14-1	43	14-0
20	13-0	44	13-0
21	15-2	45	13-0
22	11-0	46	25-1
23	15-0	47	21-0
24	13-5	48	9-0

Following the lesson in which the timed writing was administered, the remainder of Unit I was presented. Lessons 23 through 27 covered all the numbers and symbols on the typewriter keyboard, and each of these lessons was taught in one day.

The final lesson in Unit I consists of a problem in artyping. This is the term used to describe the process of making pictures by striking various combinations of keys on the typewriter. The lesson was designed to be presented during the period between Thanksgiving and Christmas. The lesson is much longer than the others in Unit I, and three days were devoted to it. The problem permits the student to type a Christmas greeting on folded paper, and each student was

given the opportunity to type a first copy and then, after seeing the completed design, re-type the entire problem so that a perfect greeting could be made by each student.

Unit I was completed during the first week of December, 1960. At this time students were concerned with Christmas programs, and it was decided to wait until after Christmas holidays for introducing Unit II.

UNIT II

Unit II, Improving Typing Skill, consists of only ten lessons. Since the purpose of this unit was to improve typing by increasing speed and reducing errors, more than one day was spent on each lesson. Two or three days were devoted to each lesson. The time spent on each lesson was determined by the degree of mastery of techniques stressed in the lessons. Only the first lesson was prepared before the unit was introduced. Other lessons in the unit were prepared as the class developed. By observing students as they typed and by analyzing papers that were typed, remedial drills and exercises were developed which were especially pertinent to the needs of the students. The following were emphasized in the lessons.

Development of rhythm was stressed in Lessons 1 and 2; these lessons also emphasize typing techniques. Key locations are stressed in Lesson 3. Correct technique for shifting for capital letters is emphasized in Lesson 4. Lesson 4 also contains drills on words involving difficult reaches which are found in the paragraph in the lesson. Rhythm is stressed in Lessons 5 and 6. Rhythm and speed development are stressed in Lessons 7, 8, and 9. The particular stress in Lessons 2 through 9 was determined by the immediate need of students as evidenced in their

daily typing. Lesson 10 contains a timed writing. This timed writing was administered exactly the same as the one in Lesson 22 of Unit I. Results of this timed writing are shown in Table 3. The timed writing was administered and the unit concluded on February 17, 1961.

TABLE 3

GROSS TYPING SPEEDS ACHIEVED AND ERRORS MADE ON A
ONE-MINUTE TEST AT THE END OF UNIT II

Student Number	Speed-Errors	Student Number	Speed-Errors
1	14-0	25	13-2
2	17-0	26	19-2
3	16-1	27	19-1
4	18-1	28	22-1
5	13-2	29	21-0
6	14-1	30	23-0
7	18-0	31	18-1
8	16-1	32	20-1
9	9-1	33	33-1
10	22-3	34	24-1
11	25-2	35	23-1
12	25-3	36	22-3
13	21-2	37	18-1
14	18-1	38	32-2
15	20-2	39	34-0
16	23-0	40	16-1
17	31-1	41	41-4
18	16-2	42	16-0
19	18-1	43	20-1
20	20-0	44	19-1
21	18-4	45	20-0
22	13-1	46	47-3
23	19-1	47	29-2
24	18-4	48	18-0

UNIT III

Unit III, Thinking at the Typewriter, was started in late February. By this time students had acquired sufficient skill in typewriting to enable them to express their thoughts. Lessons 1 and 2 of this unit

required the typing of answers to questions read aloud by the teacher. Lesson 3 required each student to type a physical description of more than one person. This particular lesson was enthusiastically received by students; one class spent an entire week working on descriptions written originally on the typewriter. Lesson 4 required each student to type a complete description of a winter sport. The description was prepared for a mythical fifth-grade student in a tropical country who knew nothing about cold weather. All students participated in this, and many of them prepared their descriptions in the form of personal and friendly letters.

Lessons 5 through 9 of this unit required each student to type two or more full sentences plus part of another sentence. This is the lead-in sentence idea which is used widely in teaching creative writing. After the lead-in sentences were copied from the lesson, the student composed a story on whatever topic he chose.

Lessons 6 through 9 of this unit were given to the experimental teachers, but they were asked not to use them immediately. Rather, it was suggested that they be used during creative writing periods which were held by all fifth-grade classes once each week. In addition to using the lessons prepared as part of this unit, each of the three experimental teachers composed lead-in sentences and wrote them on the chalkboard and the students used the typewriter for creative writing.

Lessons 3 through 9 of this unit were collected by the teachers and evaluated in the same manner as all other creative writing. In teaching the unit, stress was placed on creativity; reference was made to correct typing techniques only in cases of extreme need.

UNIT IV

Unit IV, Typing Letters, was taught in March. It contains six lessons and teaches the correct typing of both personal and business letters. Lesson 1 of this unit served as a review of the parts of letters. The first three lessons, all pertaining to the typing of friendly personal letters, were taught in one week. The final three lessons of the unit, pertaining to the correct typing of business letters, were taught the following week. In addition to copying sample personal and business letters, this unit provided opportunities for students to compose, on the typewriter, two personal and two business letters based on information furnished in the lessons. This entire unit was received more enthusiastically by students than any other unit in the study. Unit IV completed all of the instructional materials prepared for the study. Letters typed by students in Unit IV were evaluated by teachers in the same manner as letters previously written in longhand. Stress was placed on creativity throughout the unit.

INTEGRATION OF TYPEWRITING ABILITY

As soon as the lettered portion of the typewriter keyboard was learned by the students, the experimental teachers were encouraged to have the students use the typewriter for whatever written activities they thought could be accomplished on it. Some of the uses made of the typewriter in the three experimental classes are described below.

Spelling lists were typed as soon as Unit I was completed. This activity continued throughout the school year. In addition to typing spelling lists, students used the typewriter in exercises pertaining to vocabulary building. For example, teachers would write several new

words on the chalkboard and students would type a sentence for each word in which the word was correctly used. Another type of exercise in this area in which the typewriter was used involved the teacher's placing synonyms, antonyms, or homonyms on the chalkboard after which students would type sentences using the words correctly.

Techniques of outlining had been taught early in the school year in connection with social studies units of work. Students began using the typewriter for preparing outlines as soon as Unit I was completed.

In the fifth grade students have occasion to prepare many written reports. Used primarily in connection with social studies units, reports are also prepared in connection with science projects, reading projects, and in many other ways. Students began typing reports after Unit II was completed. Reports typed included science projects (hatching of chickens, for example), social studies projects (biographical reports of Civil War leaders), book projects (reviews of books read outside of class), reports on current events, and reports of trips made out of town. One class began each day with a sharing of information. It was the practice in this classroom to assign responsibility for local news, national news, international news, weather news, sports news, and so on, to individual students. Several of the students typed their reports and, after sharing them with the class, posted them on the bulletin board.

After the completion of Unit III, the typewriter was used for all creative writing activities in the experimental classrooms. The weekly creative writing periods involved typing. One boy composed his first poem on the typewriter. Two boys wrote their first stories of more than one short paragraph on the typewriter. Three girls wrote stories of five typewritten pages each.

At the end of the school year, two of the experimental classes prepared booklets which were sent home to parents. One booklet was prepared by groups assigned responsibility for a particular subject area (science, for example). The groups composed reports of the main events studied in all subjects during the year. After all reports were composed and edited, students typed the reports on master sheets for duplication. The other class preparing a booklet for distribution to parents used an individual approach. Each student typed a master sheet for duplication in which he described some of the activities of the school year. Some students in this class chose to compose poems and short stories rather than compose reports.

The third experimental class decided to hold an open house at the end of the school year. Parents and friends were invited. A program was produced with the theme of learning to type. The original script for the program was composed by the students. Invitations, programs, and name cards were all prepared on the typewriter.

After Unit IV was completed students used the typewriter for all notes and letters during the remainder of the year. One of the lessons in that unit required students to type a letter to their principal. One class typed letters to the principal, the supervising principal, and the superintendent. Two classes typed letters to the researcher. In all of the classes, students typed letters requesting information and materials needed for various units of work. Invitations to other classes and teams were typed, as were thank-you letters to special teachers. Of the 48 students used in the study, all except three reported using the typewriter for writing personal letters at home. One boy reported assisting his father in typing an income tax return.

The teaching of erasing was delayed until the third week of May, 1961. It was felt that to teach erasing earlier might adversely affect the quality of creative writing produced on the typewriter. A final timed writing was administered at the end of the experiment. Results of this writing are given in Table 4 on page 53.

SUMMARY

Typewriters were borrowed from Remington Rand Portable Typewriter Division of Sperry Rand Corporation. Regular classroom furniture was used; storage facilities were available in the classrooms. Time schedules were adjusted to accommodate the 20-to-25 minutes devoted to typing in the initial stages. After keyboard mastery was gained, teachers scheduled typing at times when it was most needed in students writing activities. Units on Learning to Type, Improving Typing Skill, Thinking at the Typewriter, and Typing Letters were taught. Teachers were able to direct students in using the typewriter in a variety of written activities. Among the written activities for which the typewriter was used were spelling lists, vocabulary building sentences, social studies and other reports, creative writing (poems, stories, and reports), special reports and booklets, and personal and business letters.

CHAPTER VI

FINDINGS OF THE STUDY

The findings of this study were grouped into three areas. Each of the areas is discussed below. The first area pertains to the preparation of instructional materials and the degree of mastery achieved by the experimental students. The second area pertains to the utilization of typewriting ability in accomplishing written activities in the fifth-grade curriculum. The third area pertains to the influence of the typewriter on the general educational development of the experimental students.

MASTERY OF TYPEWRITING

Materials were prepared for teaching typewriting at the fifth-grade level. It was found that instructional materials could be prepared which combined accepted procedures and practices in typewriting methodology and the vocabulary of the fifth grade. It was further found that the teacher's use of these materials resulted in the gaining of touch control of the typewriter by fifth-grade students. A total of 54 lessons divided into four units were prepared. Three one-minute timed writings were administered to students at different stages of the study: the first one after completion of the lettered portion of the keyboard, the second one after completion of the first 39 lessons, and the third one during the last week of school in June, 1961. The degree of typing skill achieved is shown in Table 4.

TABLE 4

GROSS TYPING SPEEDS AND TOTAL ERRORS ACHIEVED BY EXPERIMENTAL
STUDENTS ON THREE ONE-MINUTE TYPING TESTS
DURING THE PROGRESS OF THE STUDY

Student Number	First Test	Second Test	Third Test
1	12-2 ^a	14-0 ^a	17-1 ^a
2	13-0	17-0	18-3
3	9-0	16-1	22-1
4	13-2	18-1	20-0
5	8-1	13-2	21-4
6	12-0	14-1	18-2
7	13-0	18-0	22-0
8	14-0	16-1	23-1
9	12-1	9-1	13-0
10	17-3	22-3	28-1
11	17-0	25-2	18-1
12	15-3	25-3	24-3
13	13-0	21-2	19-1
14	18-2	18-1	20-1
15	10-1	20-2	16-3
16	16-1	23-0	23-0
17	22-2	31-1	30-1
18	14-1	16-2	13-1
19	14-1	18-1	21-0
20	13-0	20-0	25-9
21	15-2	18-4	23-9
22	11-0	13-1	17-2
23	15-0	19-1	23-4
24	13-5	18-4	22-3
25	11-0	13-2	18-0
26	13-0	19-2	21-0
27	11-1	19-1	23-1
28	17-3	22-1	34-1
29	15-1	21-0	23-0
30	18-4	23-0	35-1
31	16-1	18-1	23-1
32	11-1	20-1	25-1
33	19-0	33-1	41-1
34	20-0	24-1	32-1
35	19-5	23-1	30-2
36	14-4	22-3	28-3
37	11-0	18-1	17-1
38	24-2	32-2	37-5
39	20-3	34-0	35-2
40	13-1	16-1	13-0
41	25-2	41-4	52-5
42	13-0	16-0	32-2

TABLE 4--Continued

Student Number	First Test	Second Test	Third Test
43	14-0	20-1	28-3
44	13-0	19-1	23-1
45	13-0	20-0	24-2
46	25-1	47-3	52-6
47	21-0	29-2	26-6
48	9-0	18-0	21-0
<hr/>			
Dates Tests Given:	11-3-60	2-17-61	6-8-61
<hr/>			
GROSS TYPING SPEEDS			
Ranges:	8 to 25	9 to 47	13 to 52
Means:	14.9	21.0	24.8
ERRORS			
Ranges:	0 to 5	0 to 4	0 to 9
Means:	1.2	1.3	2.0

^aThe figures on the left side of the hyphen indicate gross typing speeds; those on the right side of the hyphen indicate total errors.

Explanatory notes for teachers were prepared in connection with the instructional materials. The three experimental teachers, all of whom had received instruction previously in touch typewriting but none of whom had been trained in typewriting methodology, were able to use the instructional materials and the explanatory notes in successfully teaching touch typewriting to fifth-grade students.

EFFECTS OF TYPEWRITING ON WRITTEN ACTIVITIES

The effects of using the typewriter for written activities in the language arts area were checked in five main areas. Spelling ability,

handwriting speed, handwriting quality, quality of creative writing, and quantity of creative writing were measured at the beginning and again at the end of the study. Comparisons were made with the achievements of control students in these five areas. The findings of this part of the study are reported below by subject area.

Data derived from the measurement of students both before and after the experimental part of the study were treated statistically to determine the degree of significance of gains and losses. The following explanation of the statistical treatment of the data was prepared by the statistician. Tables depicting details of the statistical treatment are included in Appendix E.

Samples are drawn from universes or populations in order to permit the investigator to make statements regarding the particular universe which is being studied. To do this requires the computation from the samples of statistical measures selected by the statistician which are representative of the population. A little reflection upon the part of the reader will probably lead him to guess that rarely will the sample yield the exact value, say, of the arithmetic mean which would be found in the universe. Therefore there exists a frequency distribution of the means of all possible samples of a given size. The mean of these means will be the mean of the universe.

When the sample is small, the distribution of means, which are the measures used in this study to characterize the universe, does not follow the normal, bell-shaped frequency curve. It was found early in this century by Student that, although the means are symmetrically distributed, they are not normally distributed. (Student was the pseudonym of William Sealy Gosset who was chemist for Guinness Brewery. The brewery had a rule that no employee could publish any article. This rule was relaxed in Gosset's case when the importance of his work was pointed out to the officials. He was required, however, to write under an assumed name. The name chosen was "Student.") He discovered intuitively the distribution which bears his assumed name.

Student's "t" distribution is more peaked than normal which means that it is more concentrated at the center than normal, leaner in the flanks, and tails out more. There is a distribution for each degree of freedom. This means of course that it is not a single curve like the normal but a whole family

of curves. As the number in the sample increases the probability of a given value occurring within a certain number of standard deviations approach those of the normal distribution. For example, the probability is 5% that a given value will fall outside 1.96 standard deviations if those values are normally distributed. If, however, there are ten of them (nine degrees of freedom) and they are distributed as Student's "t" there is a probability of 5% that a given value will fall outside 2.262 standard deviations. If there are forty-eight (forty-seven degrees of freedom) there is a probability of 5% that a given value will fall outside 2.011 standard deviations. The last mentioned critical ratio is the one used throughout this study. At 0.1% level there is probability of 0.1% that a given value will fall outside 3.525 standard deviations.¹

Spelling ability.

Results of two specially constructed spelling tests are shown in Table 5. Beginning and final scores for both the experimental and the control groups are shown. It will be noted that both groups experienced a loss in spelling ability as measured by these tests, but this is due, in all probability, to the fact that different tests were used at the beginning and at the end of the study. It is probable that the words included in the final spelling test were more difficult than those in the first test. The loss by the control group of a total of 30 words is statistically significant at the 5 per cent level; this level is moderately significant. The loss experienced by the experimental group of only 23 words is not statistically significant.

Handwriting speed

The handwriting speed of the experimental group did not suffer as a result of using the typewriter. On the contrary, the experimental group registered a larger gain in handwriting speed than did the

¹Report to the Investigator by Miss K. C. Haynes, July 13, 1961 (in the files of the investigator).

TABLE 5

BEGINNING AND FINAL SPELLING SCORES FOR
EXPERIMENTAL AND CONTROL GROUPS

Student Number	X			C			Student Number	X			C		
	1st	2nd	Gain	1st	2nd	Gain		1st	2nd	Gain	1st	2nd	Gain
1	19	17	-2	21	24	3	25	21	23	2	22	21	-1
2	23	22	-1	23	20	-3	26	17	21	4	18	18	0
3	25	21	-4	25	22	-3	27	24	25	1	24	21	-3
4	24	23	-1	25	22	-3	28	23	25	2	22	23	1
5	24	24	0	23	24	1	29	25	24	-1	23	24	1
6	24	24	0	24	24	0	30	25	25	0	25	24	-1
7	22	23	1	22	18	-4	31	25	25	0	25	21	-4
8	23	25	2	24	25	1	32	22	23	1	22	22	0
9	25	25	0	25	23	-2	33	25	24	-1	25	23	-2
10	23	24	1	24	22	-2	34	25	25	0	24	24	0
11	25	24	-1	25	24	-1	35	25	23	-2	25	25	0
12	24	21	-3	23	23	0	36	24	24	0	24	23	-1
13	24	25	1	24	23	-1	37	24	24	0	24	23	-1
14	25	24	-1	24	20	-4	38	25	25	0	25	23	-2
15	23	22	-1	25	25	0	39	25	24	-1	25	23	-2
16	23	23	0	24	24	0	40	24	25	1	25	24	-1
17	25	21	-4	24	24	0	41	25	23	-2	24	23	-1
18	24	19	-5	24	24	0	42	25	24	-1	23	23	0
19	25	22	-3	23	24	1	43	24	22	-2	24	23	-1
20	22	22	0	20	24	4	44	25	25	0	25	25	0
21	20	22	2	21	22	1	45	22	23	1	22	21	-1
22	21	21	0	21	24	3	46	25	25	0	25	25	0
23	24	23	-1	25	25	0	47	25	23	-2	25	24	-1
24	23	21	-2	25	23	-2	48	23	22	-1	22	23	1
TOTAL GAINS (LOSSES)							X= -23			C= -30			

control group. Handwriting speeds were measured by the Freeman Handwriting Scale at the beginning and end of the experiment, and speeds attained were converted into gross words per minute by the system employed in computing typewriting speeds. Table 6 shows the gains in handwriting speeds experienced by both the experimental and control groups.

The larger gain experienced by the experimental group is statistically significant at the 5 per cent level when the "t" test is applied. This level is moderately significant.

TABLE 6

COMPARISON OF HANDWRITING SPEEDS OF EXPERIMENTAL AND CONTROL STUDENTS AT BEGINNING AND CONCLUSION OF EXPERIMENT

Student Number	X			C			Student Number	X			C		
	1st	2nd	Gain	1st	2nd	Gain		1st	2nd	Gain	1st	2nd	Gain
1	10	20	10	6	13	7	25	14	14	0	11	14	3
2	11	12	1	10	13	3	26	9	11	2	7	14	7
3	6	15	9	8	15	7	27	7	14	7	12	19	7
4	5	14	9	11	17	6	28	10	22	12	14	16	2
5	8	14	6	11	14	3	29	7	15	8	12	14	2
6	8	16	8	14	16	2	30	15	18	3	12	21	9
7	7	14	7	10	11	1	31	11	17	6	14	17	3
8	7	15	8	12	16	4	32	9	13	4	10	15	5
9	10	14	4	12	18	6	33	8	17	9	12	17	5
10	9	17	8	9	11	2	34	11	20	9	14	17	3
11	14	17	3	9	11	2	35	8	13	5	10	11	1
12	13	22	9	10	16	6	36	5	11	6	14	16	2
13	10	15	5	12	16	4	37	16	22	6	11	14	3
14	12	21	9	17	15	-2	38	14	22	8	18	18	0
15	14	21	7	12	14	2	39	14	19	5	13	18	5
16	14	17	3	14	18	4	40	12	16	4	10	15	5
17	14	21	7	10	13	3	41	17	19	2	11	14	3
18	15	19	4	16	20	4	42	14	16	2	6	12	6
19	15	20	5	14	21	7	43	16	16	0	6	15	9
20	14	18	4	14	12	-2	44	10	16	6	14	18	4
21	13	14	1	9	13	4	45	18	21	3	15	21	6
22	12	14	2	14	10	-4	46	20	20	0	11	18	7
23	15	17	2	14	15	1	47	10	12	2	7	15	8
24	13	22	9	14	14	0	48	15	16	1	8	18	10
TOTAL GAINS							X = 250			C = 185			

Handwriting quality

Handwriting quality of the two groups was also measured by the Freeman Handwriting Scale. Gains experienced by each group are shown in Table 7. A comparison of the total gains of the two groups reveals that the experimental group gained 335 points while the control group gained only 230 points.

The larger gain experienced by the experimental group is statistically significant at the 5 per cent level when the "t" test is applied. This level is moderately significant.

TABLE 7

COMPARISON OF HANDWRITING QUALITY OF EXPERIMENTAL AND CONTROL STUDENTS AT BEGINNING AND CONCLUSION OF EXPERIMENT

Student Number	X			C			Student Number	X			C		
	1st	2nd	Gain	1st	2nd	Gain		1st	2nd	Gain	1st	2nd	Gain
1	75	75	0	80	80	0	25	70	80	10	70	75	5
2	80	80	0	75	75	0	26	75	80	5	75	70	- 5
3	70	80	10	80	80	0	27	85	80	- 5	70	75	5
4	80	80	0	70	80	10	28	75	85	10	70	75	5
5	70	80	10	60	75	15	29	80	85	5	65	70	5
6	65	80	15	65	75	10	30	70	75	5	80	80	0
7	70	80	10	65	75	10	31	85	95	10	80	80	0
8	75	85	10	65	65	0	32	80	80	0	75	75	0
9	70	80	10	65	65	0	33	75	80	5	75	80	5
10	65	75	10	70	75	5	34	75	85	10	80	80	0
11	70	85	15	75	75	0	35	80	80	0	70	80	10
12	65	70	5	70	75	5	36	80	85	5	75	85	10
13	70	70	0	70	65	- 5	37	75	75	0	75	80	5
14	80	75	- 5	75	75	0	38	75	80	5	70	80	10
15	70	75	5	75	85	10	39	70	85	15	65	75	10
16	65	70	5	65	75	10	40	65	65	0	75	85	10
17	70	85	15	65	65	0	41	60	70	10	70	80	10
18	65	70	5	75	75	0	42	75	80	5	65	70	5
19	60	85	25	65	70	5	43	70	80	10	80	85	5
20	80	90	10	70	70	0	44	75	75	0	75	75	0
21	65	75	10	70	75	5	45	65	70	5	75	80	5
22	70	80	10	60	70	10	46	70	75	5	70	80	10
23	75	85	10	65	70	5	47	65	75	10	70	80	10
24	70	80	10	70	80	10	48	65	80	15	70	75	5
TOTAL GAINS							X = 335			C = 230			

Quality of Creative Writing

The quality of the creative writing ability of the two groups was measured by the method described in Chapter IV. Gains experienced by the two groups are shown in Table 8. A comparison of the total gains of the two groups reveals that the experimental group gained a total of 64 points while the control group gained a total of only 42 points.

The gain experienced by the experimental group is not statistically significant at the 5 per cent level when the "t" test is applied.

TABLE 8

COMPARISON OF CREATIVE WRITING QUALITY OF EXPERIMENTAL AND CONTROL STUDENTS AT BEGINNING AND CONCLUSION OF EXPERIMENT

Student Number	X			C			Student Number	X			C		
	1st	2nd	Gain	1st	2nd	Gain		1st	2nd	Gain	1st	2nd	Gain
1	5	6	1	4	5	1	25	6	8	2	6	5	-1
2	4	5	1	3	5	2	26	6	3	2	6	6	0
3	6	6	0	6	6	0	27	9	7	-2	9	7	-2
4	3	7	4	3	6	3	28	9	8	-1	9	8	-1
5	9	8	-1	9	8	-1	29	6	8	2	5	7	2
6	7	8	1	6	9	3	30	9	9	0	8	8	0
7	5	8	3	4	6	2	31	7	7	0	6	8	2
8	6	6	0	6	9	3	32	5	6	1	5	9	4
9	7	6	-1	6	6	0	33	8	9	1	7	9	2
10	5	7	2	4	4	0	34	8	8	0	8	7	-1
11	6	7	1	6	9	3	35	5	7	2	5	5	0
12	6	6	0	6	7	1	36	5	7	2	6	6	0
13	4	9	5	5	4	-1	37	7	9	2	6	9	3
14	8	9	1	7	8	1	38	6	8	2	6	7	1
15	6	8	2	6	9	3	39	6	7	1	6	5	-1
16	6	9	3	7	9	2	40	4	5	1	5	8	3
17	6	9	3	7	7	0	41	7	8	1	7	5	-2
18	7	8	1	7	8	1	42	5	6	1	5	5	0
19	7	8	1	7	7	0	43	6	8	2	7	7	0
20	6	9	3	6	6	0	44	6	8	2	5	9	4
21	6	9	3	7	7	0	45	6	7	1	6	6	0
22	5	9	4	4	7	3	46	9	9	0	9	8	-1
23	6	8	2	7	8	1	47	4	5	1	4	6	2
24	7	8	1	6	6	0	48	6	7	1	6	7	1
TOTAL GAINS							X = 64			C = 42			

Quantity of Creative Writing

Several attempts were made to determine the amount of creative writing produced by members of the experimental and control groups. It was desired that a reliable method be devised to find out if the use of the typewriter actually resulted in more original writing. The method decided upon is explained in the following paragraph.

During the six-weeks period from April 24, 1961, to June 2, 1961, all original writing produced in school by members of the two groups was recorded as to length. Writings were classified into three groups:

short (ranging in length from 10 to 50 words), medium (ranging in length from 51 to 100 words), and long (exceeding 100 words in length). Poems, stories, articles, and reports were considered. Table 9 shows the number of writings produced by the two groups in each classification.

TABLE 9

TOTAL CREATIVE WRITINGS PRODUCED BY EXPERIMENTAL AND
CONTROL GROUPS DURING A SIX-WEEKS PERIOD

Group	Short (10-50 words)	Medium (51-100 words)	Long (over 100 words)
EXPERIMENTAL	49	88	56
CONTROL	52	47	52

During the period that records of writings were kept, one of the classes of experimental students devoted two weeks to the preparation of a duplicated booklet which was sent home to parents. The booklet contained examples of creative writing, but all of it had been written prior to the period during which writing was checked. Also during this period, one of the experimental classes used three of the lead-in sentences lessons from Unit III while the other two experimental teachers used only two such lessons.

Each fifth-grade teacher in the school system is encouraged to devote a minimum of one hour per week to creative writing. However, it was found that the actual amount of time devoted to this area depended in very large measure on the individual teacher. No statistical treatment was given to these data.

EFFECTS OF TYPEWRITING ON GENERAL EDUCATIONAL DEVELOPMENT

The effects of using the typewriter on the general educational development of fifth-grade students were checked through the use of tests in the areas of science, social studies information, social studies study skills, reading, and arithmetic. Measurements were taken at the beginning and at the conclusion of the experiment. Comparisons were made with the achievements of control students in each area. The findings of this part of the study are reported below by subject area.

Science

Gains of the two groups in the science area were measured by a standardized achievement test administered both before and at the conclusion of the experiment. Initial and final scores and gains experienced by the two groups are shown in Table 10. Scores are indicated as grade levels of achievement. It will be noted that the control group experienced a total gain of 52.1 years while the experimental group experienced a total gain of 59.9 years. Although the gain of the experimental group is larger than that of the control group, it is not statistically significant at the 5 per cent level when the "t" test is applied.

Social Studies Information

Gains of the two groups in the social studies information area were measured by a standardized achievement test which was administered at the beginning and again at the conclusion of the experiment. Initial and final scores and gains of the two groups are shown in Table 11. Scores are indicated as grade levels of achievement.

TABLE 10

COMPARISON OF SCIENCE ACHIEVEMENT OF EXPERIMENTAL AND CONTROL GROUPS AT BEGINNING AND CONCLUSION OF EXPERIMENT

Student				X			C			Student				X			C		
Number	1st	2nd	Gain	1st	2nd	Gain	Number	1st	2nd	Gain	1st	2nd	Gain	1st	2nd	Gain			
1	6.2	7.8	1.6	5.2	6.2	1.0	25	9.8	9.4	-0.4	4.7	6.2	1.5						
2	6.8	7.6	.8	7.2	7.6	.4	26	5.2	7.0	1.8	5.8	5.2	-.6						
3	6.2	6.4	.2	7.6	6.6	-1.0	27	6.2	6.2	.0	5.4	6.8	1.4						
4	5.2	7.0	1.8	5.0	5.1	.1	28	7.4	8.4	1.0	6.8	6.6	-.2						
5	7.0	10.0	3.0	7.8	10.0	2.2	29	7.2	7.6	.4	6.2	6.8	.6						
6	6.2	6.2	.0	9.4	7.4	-2.0	30	8.1	10.0	1.9	10.0	10.0	.0						
7	5.5	7.4	1.9	5.5	7.0	1.5	31	8.1	9.4	1.3	6.2	8.4	2.2						
8	7.8	9.4	1.6	9.4	9.8	.4	32	6.4	6.4	.0	4.4	6.0	1.6						
9	6.2	6.2	.0	7.4	9.1	1.7	33	7.6	6.8	-.8	5.7	6.2	.5						
10	7.0	9.8	2.8	6.4	6.6	.2	34	7.2	7.0	-.2	7.6	9.8	2.2						
11	4.7	6.2	1.5	7.2	8.4	1.2	35	5.0	5.7	.7	6.2	7.2	1.0						
12	5.8	7.6	1.8	6.4	7.8	1.4	36	4.2	6.0	1.8	5.4	8.1	2.7						
13	8.4	10.0	1.6	7.2	7.8	.6	37	6.6	10.0	3.4	6.0	7.8	1.8						
14	8.1	9.4	1.3	6.2	7.8	1.6	38	6.8	8.4	1.6	7.2	9.1	1.9						
15	7.2	7.4	.2	6.2	6.2	.0	39	6.0	7.0	1.0	5.0	7.8	2.8						
16	6.2	8.4	2.2	7.4	9.8	2.4	40	6.8	8.1	1.3	6.8	10.0	3.2						
17	6.4	8.1	1.7	7.4	7.4	.0	41	6.2	7.6	1.4	6.0	9.1	3.1						
18	5.4	7.4	2.0	7.2	8.4	1.2	42	7.2	9.4	2.2	7.2	6.6	-.6						
19	6.8	10.0	3.2	5.5	6.6	1.1	43	6.8	8.4	1.6	5.7	6.2	.5						
20	6.2	7.6	1.4	5.7	6.2	.5	44	7.8	7.8	.0	8.1	9.4	1.3						
21	5.8	7.0	1.2	6.0	8.8	2.8	45	7.2	7.2	.0	5.0	6.2	1.2						
22	7.4	10.0	2.6	5.8	7.0	1.2	46	7.4	10.0	2.6	9.8	10.0	.2						
23	5.5	7.2	1.7	7.2	9.1	1.9	47	4.2	4.4	.2	4.3	4.6	.3						
24	8.1	9.1	1.0	5.2	8.1	2.9	48	6.2	6.2	.0	6.4	6.2	-.2						
TOTAL GAINS							X = 59.9							C = 52.1					

Total gains of the experimental group were 44.1, while the control group gained a total of 73.2. This loss on the part of the experimental group is statistically significant at the 5 per cent level when the "t" test is applied. This level is moderately significant.

Social Studies Study Skills

Gains of the two groups in the social studies study skills were measured by a standardized achievement test which was administered at the beginning and again at the conclusion of the experiment. Initial

TABLE 11

COMPARISON OF SOCIAL STUDIES INFORMATION ACHIEVEMENT OF EXPERIMENTAL AND CONTROL GROUPS AT BEGINNING AND CONCLUSION OF EXPERIMENT

Student X							Student X						
Number	1st	2nd	Gain	1st	2nd	Gain	Number	1st	2nd	Gain	1st	2nd	Gain
1	6.0	5.6	-.4	5.8	7.8	2.0	25	7.0	7.0	.0	4.3	5.4	1.1
2	7.0	6.2	-.8	3.9	6.6	2.7	26	3.9	3.4	-.5	4.4	6.2	1.8
3	6.8	8.8	2.0	8.1	8.8	.7	27	5.6	4.4	-1.2	6.8	6.2	-.6
4	5.4	6.0	.6	3.1	4.8	1.7	28	6.4	7.8	1.4	5.1	6.2	1.1
5	10.0	10.0	.0	8.8	10.0	1.2	29	5.4	7.3	1.9	3.6	7.0	3.4
6	4.8	6.0	1.2	8.8	8.8	.0	30	10.0	10.0	.0	7.0	10.0	3.0
7	3.4	5.8	2.4	5.4	6.6	1.2	31	10.0	10.0	.0	8.1	10.0	1.9
8	9.2	10.0	.8	8.1	10.0	1.9	32	4.4	3.9	-.5	5.1	7.5	2.4
9	5.4	6.4	1.0	10.0	10.0	.0	33	7.0	8.1	1.1	5.6	6.4	.8
10	6.4	10.0	3.6	6.0	8.1	2.1	34	3.6	4.9	1.3	8.8	9.2	.4
11	6.6	8.4	1.8	6.4	10.0	3.6	35	2.5	5.4	2.9	4.4	7.3	2.9
12	5.4	7.3	1.9	7.8	10.0	2.2	36	4.8	5.4	.6	5.8	7.3	1.5
13	6.6	9.2	2.6	8.4	8.4	.0	37	5.6	6.2	.6	5.8	9.2	3.4
14	6.6	9.2	2.6	6.2	8.1	1.9	38	6.6	9.2	2.6	6.0	8.8	2.8
15	7.3	7.0	-.3	4.6	9.2	4.6	39	7.3	9.2	1.9	4.6	7.0	2.4
16	6.6	10.0	3.4	10.0	10.0	.0	40	10.0	10.0	.0	7.8	10.0	2.2
17	4.9	7.8	2.9	7.3	10.0	2.7	41	6.6	6.0	-.6	6.0	8.4	2.4
18	6.0	5.8	-.2	6.0	9.2	3.2	42	5.4	10.0	4.6	4.1	4.6	.5
19	8.4	6.8	-1.6	4.6	6.0	1.4	43	5.4	4.1	-1.3	4.8	6.2	1.4
20	5.1	6.0	.9	6.0	8.4	2.4	44	5.4	6.4	1.0	7.0	8.4	1.4
21	4.1	4.8	.7	6.4	7.3	.9	45	6.8	6.6	-.2	6.0	7.0	1.0
22	6.0	7.0	1.0	6.4	5.8	-.6	46	8.1	10.0	1.9	9.2	10.0	.8
23	5.8	5.4	-.4	8.8	9.2	.4	47	4.1	4.4	.3	4.6	5.4	.8
24	3.4	8.8	.4	5.4	5.6	.2	48	4.1	4.3	.2	5.4	3.4	-2.0
TOTAL GAINS							X = 44.1 C = 73.2						

and final scores and gains of the two groups are shown in Table 12. The scores shown are grade levels of achievement.

The experimental group gained a total of 108.0, while the control group gained a total of 82.6. This greater gain by the experimental group is not statistically significant at the 5 per cent level when the "t" test is applied.

TABLE 12

COMPARISON OF SOCIAL STUDIES STUDY SKILLS ACHIEVEMENT OF EXPERIMENTAL AND CONTROL GROUPS AT BEGINNING AND CONCLUSION OF EXPERIMENT

Student X							Student X						
Number	1st	2nd	Gain	1st	2nd	Gain	Number	1st	2nd	Gain	1st	2nd	Gain
1	7.1	6.6	-.5	10.0	10.0	.0	25	5.0	10.0	5.0	4.4	7.8	3.4
2	7.8	7.8	.0	4.4	6.1	1.7	26	3.8	5.7	1.9	4.4	7.1	2.7
3	5.0	7.8	2.8	5.3	10.0	4.7	27	5.3	5.7	.4	5.3	5.0	-.3
4	6.1	7.8	1.7	6.6	4.7	-1.9	28	5.7	5.3	-.4	6.6	8.8	2.2
5	5.7	10.0	4.3	7.8	10.0	2.2	29	5.7	10.0	4.3	5.0	8.8	3.8
6	4.7	10.0	5.3	8.8	10.0	1.2	30	7.1	10.0	2.9	7.8	10.0	2.2
7	5.3	8.8	3.5	5.0	5.7	.7	31	6.1	10.0	3.9	7.1	10.0	2.9
8	10.0	10.0	.0	7.1	10.0	2.9	32	4.4	5.3	.9	6.6	6.6	.0
9	6.6	10.0	3.4	5.0	10.0	5.0	33	5.7	10.0	4.3	6.1	7.8	1.7
10	8.8	10.0	1.2	5.0	10.0	5.0	34	4.7	7.8	3.1	5.7	10.0	4.3
11	6.1	10.0	3.9	6.1	10.0	3.9	35	5.0	10.0	5.0	3.5	5.3	1.8
12	6.1	8.8	2.7	6.6	7.8	1.2	36	4.7	6.6	1.9	5.7	6.6	.9
13	10.0	10.0	.0	5.0	6.6	1.6	37	4.7	7.1	2.4	7.8	10.0	2.2
14	6.6	8.8	2.2	6.6	7.8	1.2	38	10.0	10.0	.0	10.0	10.0	.0
15	10.0	10.0	.0	6.1	10.0	3.9	39	5.0	7.8	2.8	4.7	5.7	1.0
16	10.0	10.0	.0	10.0	10.0	.0	40	7.1	10.0	2.9	7.8	7.1	-.7
17	5.7	10.0	4.3	5.7	10.0	4.3	41	6.6	10.0	3.4	7.1	7.1	.0
18	7.8	7.1	-.7	7.8	10.0	2.2	42	6.6	10.0	3.4	5.3	6.6	1.3
19	6.6	10.0	3.4	6.6	7.1	.5	43	4.4	5.7	1.3	6.6	8.8	2.2
20	4.7	5.7	1.0	5.3	6.6	1.3	44	6.1	10.0	3.9	7.8	10.0	2.2
21	6.1	7.8	1.7	7.1	7.8	.7	45	5.3	7.8	2.5	4.1	5.3	1.2
22	6.6	10.0	3.4	5.0	7.8	2.8	46	5.0	10.0	5.0	7.8	10.0	2.2
23	6.6	5.7	-.9	6.1	10.0	3.9	47	4.1	5.0	.9	7.1	4.1	-3.0
24	6.1	10.0	3.9	5.3	7.1	1.8	48	5.3	5.0	-.3	7.1	4.7	-2.4
TOTAL GAINS							X = 108.0 C = 82.6						

Reading

Gains of the two groups in reading were measured by a standardized achievement test. The first test had been administered to all students at the end of the preceding school year; the final test was administered to all students at the conclusion of the experiment. The beginning and final scores are shown in Table 13. Scores are indicated as grade levels of achievement.

The experimental group gained a total of 57.8, while the control group gained a total of 56.1. The difference here is not statistically significant when the "t" test is applied.

TABLE 13

COMPARISON OF READING ACHIEVEMENT OF EXPERIMENTAL AND CONTROL
GROUPS AT BEGINNING AND CONCLUSION OF EXPERIMENT

Student							Student						
X							X						
Number	1st	2nd	Gain	1st	2nd	Gain	Number	1st	2nd	Gain	1st	2nd	Gain
1	5.6	6.8	1.2	6.0	6.7	.7	25	6.4	8.2	1.8	4.3	5.4	1.1
2	5.5	6.7	1.2	5.2	6.8	1.6	26	5.2	6.7	1.5	5.3	6.2	.9
3	5.5	7.1	1.6	6.5	7.3	.8	27	5.9	7.0	1.1	5.4	6.5	1.1
4	5.2	5.9	.7	4.9	5.1	.2	28	7.4	9.0	1.6	6.8	6.6	-.2
5	7.9	8.1	.2	8.2	9.6	1.4	29	6.1	7.2	1.1	5.2	7.3	2.1
6	6.3	6.5	.2	8.6	9.2	.6	30	9.1	10.2	1.1	7.5	9.4	1.9
7	6.9	7.8	.9	7.8	7.1	-.7	31	7.5	9.2	1.7	8.4	8.3	-.1
8	6.5	7.9	1.4	7.5	10.1	2.6	32	5.1	6.5	1.4	6.0	7.1	1.1
9	6.3	7.3	1.0	6.9	8.2	1.3	33	7.5	8.9	1.4	6.6	7.9	1.3
10	6.6	8.6	2.0	6.1	7.0	.9	34	6.1	8.4	2.3	7.9	9.5	1.6
11	6.2	6.8	.6	7.4	8.8	1.4	35	6.6	7.6	1.0	6.9	7.4	.5
12	5.3	6.6	1.3	4.7	7.0	2.3	36	5.1	6.7	1.6	5.2	6.9	1.7
13	7.8	8.9	1.1	6.9	7.0	.1	37	6.8	8.4	1.6	6.3	7.9	1.6
14	7.6	8.7	1.1	5.7	7.7	2.0	38	7.0	8.9	1.9	6.6	8.8	2.2
15	7.4	8.4	1.0	6.5	7.1	.6	39	6.0	7.5	1.5	6.2	7.0	.8
16	6.6	7.7	1.1	7.5	7.5	.0	40	7.7	8.8	1.1	7.6	9.7	2.1
17	5.8	8.3	2.5	6.9	6.8	-.1	41	6.8	7.0	.2	7.4	8.4	1.0
18	6.7	6.8	.1	6.3	7.4	1.1	42	7.6	9.6	2.0	5.9	7.4	1.5
19	6.2	7.4	1.2	4.5	6.1	1.6	43	4.6	6.0	1.4	5.3	6.3	1.0
20	5.7	7.4	1.7	4.6	5.7	1.1	44	7.0	7.4	.4	5.7	7.6	1.9
21	5.3	5.3	.0	5.7	7.4	1.7	45	5.5	6.1	.6	5.5	6.5	1.0
22	5.6	7.7	2.1	5.0	7.1	2.1	46	8.4	10.5	2.1	9.5	10.6	1.1
23	6.0	6.6	.6	5.4	7.7	2.3	47	3.9	4.7	.8	4.2	5.3	1.1
24	7.7	9.0	1.3	5.1	7.1	2.0	48	5.1	5.6	.5	6.5	6.7	.2
TOTAL GAINS							X = 57.8						
							C = 56.1						

Arithmetic

Gains of the two groups in arithmetic were measured by a standardized achievement test. The first test had been administered to all students at the end of the preceding school year; the final test was administered to all students at the conclusion of the experiment. The beginning and final scores and amount of gain are shown in Table 14. The scores are indicated as grade levels of achievement.

TABLE 14

COMPARISON OF ARITHMETIC ACHIEVEMENT OF EXPERIMENTAL AND CONTROL GROUPS AT BEGINNING AND CONCLUSION OF EXPERIMENT

Student				X				C				Student				X				C			
Number	1st	2nd	Gain	1st	2nd	Gain	Number	1st	2nd	Gain	1st	2nd	Gain	Number	1st	2nd	Gain	1st	2nd	Gain			
1	5.0	6.1	1.1	5.9	6.9	1.0	25	5.4	7.6	2.2	5.5	6.6	1.1										
2	4.9	6.5	1.6	5.1	6.4	1.3	26	5.1	6.8	1.7	5.4	6.6	1.2										
3	5.4	7.1	1.7	5.0	6.2	1.2	27	5.9	8.2	2.3	5.7	6.5	.8										
4	5.2	7.0	1.8	4.9	5.6	.7	28	5.3	6.0	.7	5.8	7.3	1.5										
5	5.5	7.6	2.1	5.9	6.7	.8	29	5.6	7.1	1.5	6.3	6.8	.5										
6	5.6	6.5	.9	5.8	7.0	1.2	30	6.0	8.1	2.1	5.9	7.1	1.2										
7	5.5	6.7	1.2	5.3	6.3	1.0	31	5.7	6.9	1.2	5.6	7.9	2.3										
8	5.9	8.5	2.6	5.6	8.8	3.2	32	5.2	6.6	1.4	5.8	7.2	1.4										
9	5.6	7.1	1.5	5.7	6.7	1.0	33	5.4	7.0	1.6	5.6	7.0	1.4										
10	5.7	7.1	1.4	5.6	6.7	1.1	34	5.9	7.1	1.2	5.9	6.9	1.0										
11	6.8	8.4	1.6	5.7	6.8	1.1	35	6.5	7.7	1.2	5.9	7.5	1.6										
12	5.6	6.5	.9	5.7	7.3	1.6	36	5.4	6.6	1.2	5.5	7.2	1.7										
13	6.1	8.3	2.2	5.9	7.4	1.5	37	5.9	7.9	2.0	5.7	7.4	1.7										
14	6.2	8.6	2.4	6.2	8.0	1.8	38	6.2	9.7	3.5	5.2	7.9	2.7										
15	6.2	8.1	1.9	6.4	8.9	2.5	39	6.3	8.2	1.9	5.5	7.2	1.7										
16	6.3	8.5	2.2	6.0	7.5	1.5	40	5.6	7.2	1.6	6.8	8.8	2.0										
17	6.2	7.4	1.2	6.2	7.9	1.7	41	6.2	7.7	1.5	6.2	7.1	.9										
18	5.2	6.0	.8	5.6	7.2	1.6	42	6.2	6.2	.0	4.2	6.2	2.0										
19	6.2	8.0	1.8	4.7	6.1	1.4	43	4.8	6.0	1.2	6.3	7.0	.7										
20	5.1	6.7	1.6	5.3	6.4	1.1	44	6.4	7.3	.9	6.0	7.5	1.5										
21	5.7	6.9	1.2	5.7	6.6	.9	45	3.2	6.9	3.7	6.3	6.6	.3										
22	6.2	8.6	2.4	5.7	6.8	1.1	46	5.0	7.7	2.7	6.2	7.9	1.7										
23	6.2	7.3	1.1	5.5	7.0	1.5	47	4.7	5.7	1.0	4.9	5.9	1.0										
24	5.5	7.0	1.5	5.8	7.2	1.4	48	5.4	7.2	1.8	5.3	5.9	.6										
TOTAL GAINS							X = 78.8							C = 65.7									

The experimental group gained a total of 78.8, while the control group gained a total of 65.7. The larger gain of the experimental group is statistically significant at the 5 per cent level when the "t" test is applied. This level is moderately significant.

EVALUATIONS BY TEACHERS AND ADMINISTRATORS

In addition to the findings which resulted from the statistical treatment of the data derived from the study, the experimental teachers and school principals were asked to evaluate the over-all effects of the

use of the typewriter. The teachers and principals were asked to discuss the experimental use of the typewriter in regard to seven topics; their answers were recorded in shorthand. Comments are reproduced below under topic headings.

The value of the typewriter in motivating students in various subject areas

Teachers' comments.--"Students this year went into much greater detail in preparing social studies outlines than any group I have taught previously." "More bibliographies were prepared this year by my students than ever before." "This year I received five or six 12-page reports in social studies; they were all typed, and I have never before received such long reports." "The bibliographies prepared by my students this year were more detailed than any I have seen any fifth-grade students prepare." "They became so interested in typing bibliographies that they checked for examples in books at home in which the information given is much more detailed than in our fifth-grade books."

"In creative writing their typed stories appeared to be very short; they became aware of this when they started typing, and gradually came to write longer stories." "The quality of their creative writing improved." "Sentences written on the typewriter seemed to be easier for them to catch breaks in, and their sentence structure improved noticeably after they started typing original sentences." "There was more underscoring where underscoring should appear in creative writing this year; I think it was because they liked underscoring in red which I permitted." "Several of my students enjoyed experimenting in creative

writing and in typing social studies reports. They showed initiative in typing tables of contents, for example."

"In spelling, the average number of perfect papers at the beginning of the school year was not more than ten; after we began typing our spelling lists the average moved up to from 17 to 19 perfect papers. I have never before had such a marked increase." "In typing spelling lists the slower typists seemed to retard the entire class, so we didn't use the typewriter too much in spelling." "We solved the problem of slow typing on spelling lists by dictating all the words once and then making any necessary corrections with pencil after all words had been typed. Double-spacing of typed words permitted us to do this."

"Perhaps the most difficult thing we did this year with typing was preparing ditto masters of a book the class had cooperatively written. The book was a report to parents on the activities of the year, and it contained samples of creative writing, stories, poems, social studies reports, a science experiment, and art drawings. We also included a letter to parents. I have never before been able to get fifth-grade students to produce a book of this size and quality." "We produced a dittoed booklet for parents. It was a group affair. Each group was assigned responsibility for summarizing our activities and achievements in different subjects. One member of each group was typist, and the typist was not always the best student. They enjoyed preparing this, and I think it was a credit to the ability of fifth-grade students."

"During the last week of school we presented a program to which parents and interested friends were invited. It centered around our experiences with typing this year, but it involved much more than typing. We worked in committees, prepared programs which were produced on the

ditto machine, prepared name cards, wrote the script for a skit, and rehearsed and produced the skit. It was the most successful culminating activity I've ever had."

Principals' comments.--"The typewriter was another thing which did something to the morale of the children. It was good for them!" "It tended to intensify the 'we' feeling within the group; they worked together better because of it." "They wanted to prove to themselves and to everybody else that they could do better in other subjects, so I think it tended to improve over the other areas." "There was an intrinsic motivation which transferred to other areas; I believe they all put forth greater effort."

The value of the typewriter with special groups of students

Teachers' comments.--"I feel that it is of greatest value to gifted youngsters. My gifted students this year produced more and better reports and papers than any I've had previously. The typewriter enabled the gifted students to produce their longer works at the same time the less able youngsters were producing their usual work." "The gifted students in my class benefitted greatly from typing, but those who were slower in other areas seemed to never completely master typing." "I found that typing was beneficial to one slow-learner in particular. This boy, at the beginning of the year, was able to write only two or three sentences while other students wrote full pages. By the end of the year he would type six or eight sentences of creative writing, and the quality was better than I had anticipated. More important, though, his work looked as good as anyone else's, and this did something for him. He gained a great deal of confidence from typing his materials." "The typewriter,

while of great value to gifted children, applies very well to students of average ability. Of course, the best students produce the best work, but the average students were able to master typing and I feel that it enhanced their work." "One of my slowest students was a boy who couldn't write a simple sentence at the beginning of the year. Within a month after we began typing he had composed a poem on the typewriter. His parents were very pleased, and so was I, for it was impossible to read his longhand writing. He found in the typewriter something which he could do as well as anyone in the class."

Principals' comments.--"I don't know how much it actually helped them all in their school work, but it certainly did something for the morale of all of them." "I think it has especial benefits for exceptional children, but I would recommend screening those who study it."

The feasibility of using the typewriter in the fifth grade in all subject areas

Teachers' comments.--"We used it in everything except arithmetic." "I think it has great value for every subject except arithmetic." "One of my boys did a long division arithmetic assignment on the typewriter. He regarded it as a novelty, but I don't think it had much real value."

Principals' comments.--"I would like to see it tried with every subject." "I would like to see this beginning followed up; then we could know of its lasting value for all subjects."

The ability of all fifth-grade students to learn to type properly

Teachers' comments.--"All can learn it; it will take longer for some than for others." "All can learn it to a degree, but a few of mine

never really became proficient typists." "All of my students mastered typing except for one boy who was brain-damaged. He learned to type with only the index fingers, but he lacked the muscular coordination needed to become a touch typist."

There were no comments from the principals on this topic.

The introduction and use of the typewriter in the fifth grade with regard to the time schedule and other subjects

Teachers' comments.--"During the first unit, while learning the keyboard, we allotted time each day to typing. We spent a few minutes less on some subjects than we usually gave to them, but I felt that the enthusiasm created by typing and the increased amount of work it permitted later in the school year more than made up for those few minutes during the first few weeks." "Typing never infringed on other studies, not even at the beginning. On the contrary, it contributed time and enthusiasm by motivating the students and enabling them to achieve their written work in a shorter length of time." "Once we learned to type with some proficiency, it actually made for more work in other areas."

Principals' comments.--"It didn't sacrifice anything." "It takes a competent teacher to do it, but it can be done so that the regular academic program doesn't suffer."

In addition to commenting on the topics discussed above, the three experimental teachers were asked the following two questions at the end of the school year. Their responses are given verbatim.

After considering all the effort and extra time you have devoted to typing this year, would you consider teaching it again another year?

"Heavens, yes; I think my enthusiasm and enjoyment of this project came in large part from the response of the students and from the easy

coordination between our typing lessons and our current studies." "I certainly would." "I would do it every year for it not only helped my students, it made me a more enthusiastic teacher."

In comparison with previous fifth-grade classes, have this year's accomplishments seemed greater or less when the entire class is considered?

"I had six students this year who had been retained and two whose IQ's were in the seventies. This was below previous classes I have taught, yet they did as much as any previous group." "My group this year was slightly above the average of last year, and I think they did much more and better work. I don't believe I have ever had a group that did as well as this one did." "My group this year was about the same as previous groups in ability and intelligence, but they were harder to work with than the others. Typing seemed the one area in which we all got together, and before the year was over we had produced more work such as projects and reports than any previous group. They also scored higher on their achievement tests at the end of the year than any group I've worked with previously."

SUMMARY

Measurements were made of the experimental and control students before and after the typewriters were used. Ten areas were measured. Experimental students experienced a loss in only one area (social studies information), and this loss was moderately significant. Experimental students experienced gains in nine areas (handwriting speed, handwriting quality, spelling ability, quality of creative writing, quantity of creative writing, arithmetic achievement, science achievement, reading achievement, and social studies study skills achievement). The gains in

handwriting speed, handwriting quality, and arithmetic achievement were statistically significant at the 5 per cent level. Teachers and administrators felt that the typewriter had very great value as a motivational device. All of the experimental teachers and administrators felt that typing should be continued in the fifth grade.

CHAPTER VII

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This study was concerned with the preparation of instructional materials and the teaching of typewriting in the fifth grade. There was concern also with the possible integration of typewriting skill into the written activities of the language arts area of study.

SUMMARY OF FINDINGS

1. It was possible to combine accepted typewriting methodology and fifth-grade vocabulary in preparing instructional materials particularly suited to fifth-grade students.
2. The selected classroom teachers were able to use the materials in teaching touch typewriting to fifth-grade students.
3. Fifth-grade students were able to master touch typewriting in a relatively short time.
4. Fifth-grade students used their typewriting skill in creative writing, in preparing social studies reports, in preparing outlines, in preparing bibliographies, and in writing spelling lists.
5. The use of the typewriter had a statistically significant positive effect on the handwriting speed and handwriting quality of fifth-grade students. The use of the typewriter had a positive, though not statistically significant, effect on the spelling ability and the creative writing ability of fifth-grade students. The use of the typewriter resulted in the production of a larger quantity of creative writing by fifth-grade students but the increase was not statistically significant.

6. The use of the typewriter had a statistically significant positive effect on the arithmetic achievement of fifth-grade students. The use of the typewriter had a positive, though not statistically significant, effect on the science, reading, and social studies study skills achievement of fifth-grade students. The use of the typewriter had a statistically significant negative effect on the social studies information achievement of fifth-grade students.

7. Typewriting was taught in fifth grade without the use of special furniture or equipment, other than manual portable typewriters.

CONCLUSIONS

1. There is justification for teaching touch typewriting to fifth-grade students. Measurement of student ability and achievement in ten areas indicated growth in nine areas and loss in only one area.

2. Instructional materials appropriate for intermediate or higher grade levels of the elementary school can be prepared in which typewriting instruction is given in language appropriate for the grade level. The materials used were confined to the fifth-grade level and utilized 327 of the 500 words most common to the fifth-grade vocabulary. There were no restrictions in developing appropriate typewriting methodology. It seems reasonable that this can be done for higher grade levels.

3. A satisfactory typewriting instructional experience can be provided by the typical fifth-grade teacher provided the teacher has been trained as a touch typist.

4. Intermediate grade level students can sufficiently master the typewriter as to double or triple their longhand writing speeds. Typewriting speeds achieved in this study ranged from 13 to 52 words a minute

while handwriting speeds ranged from 11 to 22 words a minute. In the Columbia University study fifth-grade students' typewriting speeds ranged from 18 to 42 words a minute while their handwriting speeds ranged from 13 to 22 words a minute. In the University of North Dakota study, fourth-grade students' typewriting speeds averaged 42 words a minute while their handwriting speeds averaged 11.6 words a minute.

5. Touch typewriting can be used in every subject area of the fifth-grade curriculum with the exception of arithmetic. Students in this study used the typewriter for creative writing, writing spelling lists, preparing bibliographies and outlines, and writing reports in reading, social studies, and science.

6. The use of the typewriter in the elementary school has great motivational value. Teachers and administrators were unanimous in the opinion that the enthusiasm displayed by fifth-grade students with regard to the typewriter was carried over into every activity of the fifth grade.

7. Typewriting can be taught to fifth-grade students for periods of up to 25 minutes per day without seriously impairing other current offerings. Teachers and administrators expressed the opinion that the improvement in quality and increase in quantity of written work after the use of the typewriter had been mastered more than compensated for the time devoted to typewriting instruction initially. Finding number five seems to substantiate this opinion.

8. The use of the typewriter has a positive effect on the general educational development of fifth-grade students. Of ten areas measured, students using the typewriter experienced a loss in only one area (social studies information), while experiencing gains in nine areas (handwriting

speed, handwriting quality, spelling ability, quality of creative writing, quantity of creative writing, arithmetic achievement, science achievement, reading achievement, and social studies study skills achievement).

9. Typewriting can be taught at the fifth-grade level without the purchase of special furniture. Two types of desks and chairs were used in this study. Minor adjustments were made which involved no expense. Adequate storage space for typewriters was provided by re-arranging the furniture in the classrooms.

RECOMMENDATIONS

Based on the findings and conclusions of this study, the following recommendations are made.

1. Additional instructional materials should be prepared. They should incorporate more subject matter from the present fifth-grade curriculum.

2. Consideration should be given to the inclusion of a course in touch typewriting in the elementary teacher-education curriculum.

3. The long-range effects of the use of the typewriter upon the general educational achievement of students need to be evaluated. This could be done by a follow-up study of the students who participated in this experiment at the end of one year and again at the end of two years.

4. The effect that the typewriter may have as an aid to learning for pupils of varying abilities needs to be fully investigated.

5. A study should be made in an attempt to determine the degree of typewriting skill needed by fifth-grade students.

6. The desirability of using a centrally located typewriting room for several sections of elementary school grades should be investigated.

7. The effect of the use of the typewriter in school on the home study habits of elementary school students should be studied.

8. The comparative merits of using the manual portable typewriter and the portable typewriter with electrified keyboard with elementary school students should be studied.

9. The amount of research completed in the area of typewriting in elementary schools should be considered seriously by all those concerned with the education of children.

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APPENDIX A

Explanatory Notes for Teachers

Instructional Materials

EXPLANATORY NOTES FOR TEACHERS

The numbered explanations and suggestions below refer to the numbers on the teacher's copy of the lessons.

INTRODUCTION

Objective: To explain the operation of the SPACE BAR and the CARRIAGE RETURN LEVER and to point out the location of the HOME KEYS and identify the correct fingers for the HOME KEYS.

1. HOME KEYS: Read the instructions aloud to students, demonstrating the correct placement of each finger on the appropriate key. The best position for the hands is to have fingers curved over keys. Hands should be held near enough each other so that thumbs could be locked together.

It is easier to say SEM than SEMICOLON when calling out drills as students type.

2. SPACE BAR: Read instructions aloud to students and demonstrate correct technique. As soon as students have their hands in the proper position, activate the space bar on the demonstration machine several times, saying SPACE each time. Then have students space on their machines while you call out SPACE and activate the space bar on the demonstration machine.

When students begin this introductory exercise the carriage will be about half way across the paper. By having them operate the space bar 15 or 20 times you will move the carriage over near the right margin and thereby have the machine ready to teach the carriage return.

3. CARRIAGE RETURN LEVER: Point to the carriage return lever on the demonstration machine and identify it. Read instructions aloud to students and then demonstrate how the carriage is returned. The right hand should remain on the home keys when the carriage is returned. The carriage return is best accomplished with a TOSSING motion rather than a push.

4. SPACING AND RETURNING CARRIAGE: If students encounter any major difficulty in accomplishing the above, you might want them to space over and return the carriage several times. It is suggested that they space all the way over to the right margin at least once and possibly space over about half way across the paper two or three times.

Students do not need to be guided by the bell until later. Should they ask about it, merely explain that it is just a warning that soon the carriage must be returned.

LESSON 1

1. HOME KEY DRILLS: Read instructions aloud to students and again demonstrate the correct positions of the fingers on home keys and thumb over space bar. Then, demonstrate how the exercise will be typed. Have students watch you as you type the first line and call out each letter, space, and carriage return. The first line should be called as follows:

FFF SPACE FFF SPACE FFF SPACE JJJ SPACE JJJ SPACE JJJ SPACE FFF SPACE
JJJ SPACE FFF SPACE JJJ RETURN.

Then have the students type the same line a second time without the letters and spaces and return being called. While they type the line the second time through, you might walk among them or near enough to them to observe. If someone is having obvious difficulties, try to help them.

When the second group of letters are to be typed (the "ddd kkk" lines), have students return carriage twice (double-space between groups). Then, call aloud while demonstrating the second group as students type along with you. Demonstrate and call only the first line of each two-line group.

You will help the students a great deal if you pace the early lessons well. You accomplish this by the speed at which you call out the letters and spaces. For the first few lessons, try using about two seconds to say FFF SPACE. This contributes greatly to the development of proper stroking technique. As you near the end of the line, you might speed up the pace slightly.

2. DRILLS ON LETTERS, WORDS, AND PHRASES: Use the same method explained above for calling out each line the first time through. When the words appear, spell them out (say each letter and then space rather than saying the word and then space).

Don't forget to refer to the semicolon as SEM. To call it semicolon would destroy the rhythm you've established.

LESSON 2

INSERTING PAPER: Lesson 2 does not instruct pupils in the insertion of paper. It is a relatively simple process and can best be taught by demonstration. The following steps should be followed:

- (1) Hold paper lengthwise in left hand (thumb and index finger).
- (2) Gently drop paper behind cylinder (black roll), flush against paper guide (small metal which protrudes forward--located at left end of carriage behind cylinder--this has been previously set at zero on the scale behind the cylinder).
- (3) While holding paper lightly with left hand, grasp right cylinder knob with fingers and thumb of right hand and roll it away from you.
- (4) Pull paper bail (metal bar with two small black rollers resting on top of cylinder) slightly forward until paper is rolled up to writing position (about five or six spaces up after paper first appears in front of cylinder).
- (5) Push paper bail back to proper position (resting on top of paper).

1. REVIEW: Each lesson will contain a review at the beginning. The purpose of the review is merely to refresh in the typist's mind the keys previously learned. Teacher should call each letter and space and carriage return aloud for first line in each two-line group. Pupils should type the second line alone.

2. NEW LETTERS: In teaching each new letter, the following system is recommended:

- (1) Have students look at keyboard and point out location of new letter being learned.
- (2) Have students reach for new letter with proper finger while looking at the new letter.
- (3) Have students close eyes (or better, look at lesson copy) and reach for new letter.
- (4) Direct students through the drill which stresses the new letter being learned.

NOTE: For the first few days, make sure each pupil knows the correct finger to use in typing the new letter. This can be assured by holding up the proper finger and identifying it. From this lesson on, fingers will be referred to by the letter which they type among the home keys.

LESSON 2--Continued

3. The third two-line group in this lesson introduces four-letter words. Try not to change the rhythm which has been established. To accomplish this, you might need to take an extra deep breath!

4. The last part of each of these beginning lessons will include an exercise for students to type alone (without teacher calling them aloud). This portion of the lesson is flexible so far as time is concerned. They may type each line for as long a time as can be spared for typing. While students type this portion of each lesson, teacher should walk around room, observing and correcting where needed. Encourage students to do the following two things as you walk among them:

- (1) Look at copy (lesson) while typing.
- (2) Do not look up when returning carriage.

LESSON 3

1. Although students are urged to hold all fingers as close over the home keys as possible each time a reach is made to a new key, this is not always possible. The basic point is that all reaches should be made with fingers; hands should not move about. Some allowance must be made because of the size of these students' hands. However, hand movements should be kept to a minimum.

LESSON 4

1. From this lesson on, many lessons will contain reminders at the bottom of the page. You might point this out to students some time during the lesson (just before they type the final part of each lesson would be a good time).

LESSON 5

1. Before students begin typing this lesson, read them the reminder from Lesson 4.

2. This rhythm drill contains all letters learned up through Lesson 5. Basically, it consists of the home keys. You might call it through twice for them, speeding it up a bit the second time. You will notice that this drill alternates the stroking from left hand to right hand. It is a good device for building stroking speed and establishing smooth rhythm.

LESSON 6

1. REVIEW: This is a review of all keys introduced in the first five lessons. It has been designed so that students may type, at their own speeds, all the keys they know. Drill lines in this lesson are of three types: (1) Some lines stress the use of the right-hand keys; (2) Some lines stress the use of the left-hand keys; (3) Some lines stress the alternate use of both hands. Two new items are also introduced here.

2. SHIFT KEY: This lesson confines the typing of capital letters to the left shift key (A finger) and to letters typed with the right hand. The S-D-F fingers should remain anchored while shift key is depressed but this might not be possible with small hands. Students should be cautioned to insure that fingers are returned to proper positions if it proves necessary to move all fingers when reaching for the shift key. Also, shift key must be depressed all the way down and held down while letter is typed in order for capital letter to appear neatly on line.

3. THE PERIOD: No drill is provided here on this new key. It is introduced and used only to enable students to type complete and correct sentences. When the period is being typed, at least the J finger should be kept anchored on home base.

4. CALLING LETTERS TO BE TYPED: From this lesson on, it is not essential that all drills be called for students. The review portion of each lesson should be called, and also the first line of each technique or new letter drill ("Joe or Jeff or etc." in lesson 6). Thereafter, students may type on their own. However, teacher should instruct them to type each line as many times as possible and not to proceed to the next line until time is called. Then, call time on them and direct them to the next line. Allow from two to three minutes on each line (that is, two or three minutes for them to type two or more lines of each two-line group of words and sentences in the lesson).

LESSON 7

1. NEW LETTER: Introduce T in the same manner as other new letters have been presented. Students sometimes find it easier to type T if they reach from F to R to T.

2. SPACING AFTER SENTENCES: Two blank spaces should be left after a period at the end of a sentence. This ensures easy reading when abbreviations are included in typed material (only one space follows a period used after an abbreviation).

While students are typing on their own, without letters and spaces being called, the teacher can enhance the learning by walking through the room and giving encouragement and advice and taking corrective action where needed.

LESSONS 8 and 9

There are no special explanations for these lessons since no new techniques are involved. You will note that these lessons are shorter than the earlier ones, and the last part of each lesson is designed so that any amount of time (from a few to several minutes) can profitably be spent on it.

LESSONS 10 through 14

No new techniques are introduced in these five lessons, with the exception of the right-hand shift key. This comes in Lesson 10, and it is the same technique on the opposite hand as was taught earlier.

The previously established pattern of introducing one new letter in each lesson is continued. You will note that some drill lines are composed of four- and five-letter words.

The sentences in the final part of each lesson are designed to provide drill on whatever new letter is being learned. These sentences also contain words from the list of 100 words most frequently misspelled by fifth-grade students. When one of the spelling boners is used, an attempt is made to give its meaning in the context of the sentence.

By this time students should have mastered the home row and the first few keys taught subsequent to the home row. They should be able to type the review and the new letter drills in less than 15 minutes. The sentences should be typed by each student at his own rate, and this will mean that some students might not get completely through the sentences while others might type each sentence three or more times. You have no doubt noticed that speed differences are beginning to appear among the students. This is normal in any typing class.

Margins on all typewriters were originally set up for a 50-space line (left margin on 20; right margin on 70). Some of the sentences in these lessons require almost 50 spaces. If a margin stop has been moved, the student will find that his machine stops before he types the complete sentence. In such a case, direct the student to tap the margin release key (located in the upper right-hand corner of the keyboard and marked M.R.) with his SEM finger. The margin release key should not be held down; merely tap it when the carriage stops.

Directions for typing sentences are gradually shortened and finally eliminated since it is assumed that the pattern has now been established.

By reducing the amount of drill and letting each student type the sentences at his own speed, it is believed that a lesson can be handled each day. If the lessons still contain too much material for a period of from 20 to 25 minutes, they will be shortened again.

LESSON 15

This lesson introduces a different version of the home-row rhythm drill. You will notice that this one contains all letters of the home row and that there are no spaces between letters. The drill starts with the little fingers and works in to the center of the keyboard, then back out, then back in to center, etc. Hands are used alternately. This exercise will be found in the next several lessons. Students should be cautioned to use the correct finger for each lesson.

LESSON 18

In this lesson, for the first time, students type abbreviations. There is a reminder in the lesson to leave one space after the period at the end of an abbreviation and two spaces after the period at the end of a sentence.

This lesson also includes a paragraph. The faster students should be able to type it at least twice, and it is hoped that each student will be able to type it at least once.

The paragraph here and the next few are not indented. This will be taught soon after the lettered portion of the keyboard is completed.

LESSON 20

This lesson introduces two letter keys, X and Z, and completes the introduction of the lettered portion of the keyboard. These two keys are introduced in the same lesson and less drill is provided than usual because these keys are not often used in writing.

The short paragraph at the bottom of the page should be typed as many times as possible toward the end of the period.

LESSON 21

This lesson begins timed writings (speed tests). The drill material is comprised mainly of those words the students will encounter in their first few timed writings. The drill should be practiced in the usual way (each line two times).

The paragraph should be practiced at least once by all students. Some of the faster typists will be able to type it two or three times. Then, each student should insert a clean sheet of paper and type his name at the top of the page as directed at the bottom of the lesson.

LESSON 21--Continued

Explain fully to the students that they are to begin typing on the paragraph as soon as you say the word BEGIN. They are to type without pause until you say STOP. Should they finish the entire paragraph before time is called, they are to return the carriage and begin the paragraph again. All students must stop when time is called.

Follow this routine at least three times. Allow one minute each time for typing the paragraph, and remind students to space five times between writings.

After the paragraph has been typed during three one-minute timings, collect papers. They will be picked up after school and scored, and you will be given a list of speeds and errors achieved by each student.

Lesson 22 will use the same paragraph (with one sentence added) and will involve the timing of three-minute writings. Lesson 23 will begin introducing the numbers and symbols on the keyboard.

LESSON 22

This lesson contains a three-minute timed writing. Students should practice typing the review for four or five minutes. Then they should practice the paragraph for five or six minutes. Then, on a clean sheet of paper they should type their names and prepare to type the paragraph for three minutes. You will need to time them and instruct them as to when to BEGIN and STOP typing. A total of three three-minute writings should be given. The best of their three writings will be scored.

LESSON 23

This lesson begins presentation of the numbers on the typewriter. You will notice that the number one (1) which appears on the top row with the other numbers is taught here. Mention is made of the fact that the lower-case L is used as the number one on machines which do not have a number one on the number row.

Each of the lessons on numbers will present three numbers. Students will not master typing numbers with the limited amount of drill being offered. It is believed that they will develop a degree of familiarity sufficient to enable them to use the numbers in their typing.

In this lesson, just before the last two-line drill is typed, mention should be made of the note at the bottom of the lesson. This merely explains how the comma should be typed.

LESSON 28

This lesson introduces several operative parts of the typewriter. Possibly some of the students will have discovered these parts on their own. Each operative part should be explained, demonstrated, and then explained again while students practice using the part.

In addition to introducing the operative parts, practice is given in their use in the form of a problem. This problem involves the making of a picture by typing certain letters in directed sequences. Directions must be followed to the letter or the picture won't come out right. By following the directions exactly, students will type a Christmas greeting in red which may be folded into a Christmas card. The picture and the greeting are reproduced below. Those typed by students will differ from this in that students will type in red and the tree will appear to be upside down which is essential for folding into a card form.

[illegible]

*
MAY
ALL THE
HAPPINESS A
MERRY CHRISTMAS
BRINGS BE YOURS FOR
ALL THE COMING NEW YEAR
* *
* *

INTRODUCTION

Before you actually begin typing, there are several things which you must do. These things are described below. Your teacher will read them with you and demonstrate how they should be done. Try to do them exactly as they are demonstrated.

HOME KEYS: These are eight keys located on the second row up from the bottom. You make all reaches to the other keys from these home bases. Place your fingers on the proper keys in this manner:

LEFT HAND

Little finger on A
Ring finger on S
Middle finger on D
Index finger on F

A S D F

RIGHT HAND

Little finger on ;
Ring finger on L
Middle finger on K
Index finger on J

J K L ;

Note: The character ; is a punctuation mark called the semicolon. Until later when we learn how to use it we will call it SEM.

SPACE BAR: Your left thumb should be pulled in toward your hand, close to your left index finger. Your right thumb should be held just over the space bar which is the long bar at the bottom of the keyboard. Now, with your fingers on the home keys and your right thumb resting just over the space bar, your hands are properly located for typing.

Tap the space bar once or twice with your right thumb, making your thumb bounce off the space bar. Notice how the carriage holding the paper moves along as you tap the space bar. Tap the space bar as your teacher directs you.

CARRIAGE RETURN LEVER: This is the bright shiny lever at the left end of the carriage. When properly operated, it will return the carriage and paper to the left side and also move the paper up to the next writing line. To operate the carriage return lever, raise your left hand from the keyboard, place the index finger and the next finger or two against the top curved part of the lever, and toss it! Toss the carriage with enough force to move it all the way back to the left margin.

Try tapping the space bar several times until your carriage moves all the way over to the right margin. Then---return the carriage!

LESSON 1

A S D F / J K L ;

Notice that each line is given twice. Your teacher will call out the letters as you type them the first time. When she calls SPACE you are to tap the space bar. When she calls RETURN you are to toss the carriage. Then, type the line the second time through at your own speed without the letters being called.

fff fff fff jjj jjj jjj fff jjj fff jjj (Return!)
 fff fff fff jjj jjj jjj fff jjj fff jjj (Return twice!!)

ddd ddd ddd kkk kkk kkk ddd kkk ddd kkk
 ddd ddd ddd kkk kkk kkk ddd kkk ddd kkk

sss sss sss lll lll lll sss lll sss lll
 sss sss sss lll lll lll sss lll sss lll

aaa aaa aaa ;;; ;;; ;;; aaa ;;; aaa ;;;
 aaa aaa aaa ;;; ;;; ;;; aaa ;;; aaa ;;;

aaa ;;; sss lll ddd kkk fff jjj aaa ;;;
 aaa ;;; sss lll ddd kkk fff jjj aaa ;;;

Now you are familiar with all the home keys. Try typing the following letters and words. Type the line through the first time as it is called by your teacher. Type it the second time at your own speed.

aaa sss kkk ask ask aaa lll all all all
 aaa sss kkk ask ask aaa lll all all all

ddd aaa as; as; lad lad lad dad dad dad
 ddd aaa as; as; lad lad lad dad dad dad

ask ask asks dad dad dads lad lad lads
 ask ask asks dad dad dads lad lad lads

a dad asks all lads; a dad asks all lads;
 a dad asks all lads; a dad asks all lads;

LESSON 2

REVIEW: Type the following letters and words which you learned yesterday. Remember to strike the keys with short, sharp strokes!

aaa ;;; sss lll ddd kkk fff jjj aaa ;;;
 aaa ;;; sss lll ddd kkk fff jjj aaa ;;;

lad lad fad fad dad dad sad sad add add
 lad lad fad fad dad dad sad sad add add

NEW LETTER: E is typed with the "D" finger. While holding all other fingers lightly over their home keys, raise the "D" finger and reach up and strike the E. Type the following letters and words the first time through as your teacher calls them. Type them the second time at your own speed. Try looking at your copy (this paper) as you type.

ddd ddd eee eee ded ded led led fed fed
 ddd ddd eee eee ded ded led led fed fed

ade ade sea sea lee lee fee fee see see
 ade ade sea sea lee lee fee fee see see

deal deal seal seal feel feel keel keel
 deal deal seal seal feel feel keel keel

lade lade jade jade leaf leaf deaf deaf
 lade lade jade jade leaf leaf deaf deaf

sale sale sake sake lake lake lade lade
 sale sale sake sake lake lake lade lade

Type the following words on your own without the teacher calling them. See how many lines you can type in the remaining time.

a sled fell as a sad lad asked a dad;
 a sled fell as a sad lad asked a dad;
 a sled fell as a sad lad asked a dad;

LESSON 3

REVIEW: Type the following review of all the keys you have learned this far. Your teacher will call the first line; type the line the second time on your own.

j j j f f f k k k d d d l l l s s s ; ; ; a a a e e e e e e
j j j f f f k k k d d d l l l s s s ; ; ; a a a e e e e e e

d e d d e d s e e s e e e e l e e l s e a s e a l e a l e a
d e d d e d s e e s e e e e l e e l s e a s e a l e a l e a

NEW LETTER: O is typed with the "L" finger. As you reach up to type O be sure to hold all the other fingers as close over the home keys as possible. Return the "L" finger to its proper position immediately after typing O.

l l l l o l o o o l o l o l d o l d o d e o d e o d d o d d
l l l l o l o o o l o l o l d o l d o d e o d e o d d o d d

d o d o d o e d o e s o s o s o d s o d s o d a s o d a
d o d o d o e d o e s o s o s o d s o d s o d a s o d a

f e e d f e e d f o o d f o o d l o o k l o o k k o o l k o o l
f e e d f e e d f o o d f o o d l o o k l o o k k o o l k o o l

o a k o a k s o a k s o a k s o a k s s o a k s s o a k e d s o a k e d
o a k o a k s o a k s o a k s o a k s s o a k e d s o a k e d

j o k e j o k e l o a d l o a d l o a f l o a f s o l e s o l e
j o k e j o k e l o a d l o a d l o a f l o a f s o l e s o l e

See how many times you can type the words below during the remaining time.

a load of food looks old; a loaf falls off;
a load of food looks old; a loaf falls off;
a load of food looks old; a loaf falls off;

LESSON 4

VIEW:

a as ask asks see seed seeds led sled sleds
a as ask asks see seed seeds led sled sleds

so old sold of off do does doll food look
so old sold of off do does doll food look

NEW LETTER: R is typed with the "F" finger. Lift the "F" finger up and reach straight up to R. Do not move your right hand as you make this reach. Try to hold your A, S, and D fingers still.

fff frf rrr for frf far frf for far for
fff frf rrr for frf far frf for far for

fff ooo rrr for for fff aaa rrr far far
fff ooo rrr for for fff aaa rrr far far

jjj aaa rrr jar jar rrr eee ddd red red
jjj aaa rrr jar jar rrr eee ddd red red

ere ere era era ear ear are are rae rae
ere ere era era ear ear are are rae rae

real real read read rare rare rake rake
real real read read rare rare rake rake

When you type the following try not to look at the keyboard (keep your eyes on this copy).

read all addresses for all are for real;
read all addresses for all are for real;
read all addresses for all are for real;

REMINDE R: While typing, always keep fingers CURVED!

LESSON 5

REVIEW:

as or do so of as or do so of as or do
as or do so of as or do so of as or do

are ade sea oak ode are ade sea oak ode
are ade sea oak ode are ade sea oak ode

NEW LETTER: I is typed with the "K" finger. While holding all the other fingers as close to the home keys as possible, raise your "K" finger and reach up and type "I" --- then quickly return the "K" finger to its home position.

kkk iii kik kik iii lll iii ill ill ill
kkk iii kik kik iii lll iii ill ill ill

lid lid kid kid did did lie lie ike ike
lid lid kid kid did did lie lie ike ike

life life like like dike dike disk disk
life life like like dike dike disk disk

died died kill kill side side said said
died died kill kill side side said said

if if is is aid aid said said laid laid
if if is is aid aid said said laid laid

RHYTHM DRILL: The following drill is very easy and will help you develop a good typing rhythm. Type it the first time with your teacher as she calls it. Then type it several times on your own.

a ; s l d k f j f j d k s l a ; e i r o
a ; s l d k f j f j d k s l a ; e i r o
a ; s l d k f j f j d k s l a ; e i r o

R E M I N D E R: After striking a key, release it INSTANTLY!

LESSON 6

TYPING CAPITAL LETTERS

Review: a ; s l d k f j d k s l a ; e i r o a ;
 a ; s l d k f j d k s l a ; e i r o a ;

CAPITAL LETTERS: The shift keys, used in typing capital letters, are the wide keys at each side of the bottom row of the keyboard. To make capitals of letters typed with the right hand, depress the left shift key with the A finger and hold it down while typing the letter with the correct finger of the right hand. Release the shift key as soon as you type the letter, and return the A finger immediately to its home position. Use the following 1-2-3 motion for typing capitals:

1--Depress shift key 2--Type letter 3--Return A finger

Type the following words on your own without the teacher calling them:

Joe or Jeff or Jake or Kas or Ked or Kerr
 Joe or Jeff or Jake or Kas or Ked or Kerr

Lee or Les or Lear or Ike or Ida or Ilka
 Lee or Les or Lear or Ike or Ida or Ilka

Ola or Ole or Olla or Joe or Kas or Lear
 Ola or Ole or Olla or Joe or Kas or Lear

THE PERIOD: The period . is typed with the L finger. Just reach the L finger down and tap the period, then return to L.

Type the following complete sentences. Type each sentence twice.
 See how many perfect sentences you can type!

Bill asks for a red doll dress.
 Bill asks for a red doll dress.

Ole likes all foods as I like jokes.
 Ole likes all foods as I like jokes.

Jeff sees a rare seal as I see a sea.
 Jeff sees a rare seal as I see a sea.

LESSON 7

REVIEW: jJj jJj kKk kKk lLl lLl iIi iIi oOo oOo
 jJj jJj kKk kKk lLl lLl iIi iIi oOo oOo

NEW LETTER: T is typed with the F finger. Reach up and toward the right. Return finger to F immediately after tapping the T.

fff ftf ttt ftf fat fat fat aft aft aft
 fff ftf ttt ftf fat fat fat aft aft aft

fit fit kit kit lit lit sit sit sat sat
 fit fit kit kit lit lit sit sit sat sat

fat fat tat tat set set let let jet jet
 fat fat tat tat set set let let jet jet

jot jot lot lot dot dot sot sot rot rot
 jot jot lot lot dot dot sot sot rot rot

SENTENCES: Type the following sentences twice. See how many perfect sentences you can type. In typing, always space twice after a period at the end of a sentence.

Jeff sits as Kate reads. Kit looks at it.
 Jeff sits as Kate reads. Kit looks at it.

I took tea to a fat lad. Lottie ate later.
 I took tea to a fat lad. Lottie ate later.

RE M I N D E R: In typing capitals, be sure to hold shift key down until after letter is typed!

LESSON 6

REVIEW:

a ; s l d k f j e i r o t . e i r o t .
 a ; s l d k f j e i r o t . e i r o t .

NEW LETTER: U is typed with the J finger. Reach up and slightly to the left. Tap the U quickly and return finger to J. Type each of the following lines twice without your teacher calling them.

jjj uuu juj uuu juj juj kkk kuk juj juj
 jjj uuu juj uuu juj juj kkk kuk juj juj

dud dud due due sue sue rue rue rut rut
 dud dud due due sue sue rue rue rut rut

jut jut our our out out us us us use use
 jut jut our our out out us us us use use

full full dull dull sure sure four four
 full full dull dull sure sure four four

SENTENCES: Type each of the following complete sentences twice. See how many perfect ones you can type.

Lee talks as Ida reads.
 Lee talks as Ida reads.

Our sure task is to read.
 Our sure task is to read.

Kurt sued Jud for a dollar.
 Kurt sued Jud for a dollar.

Use a full loaf for our food.
 Use a full loaf for our food.

LESSON 9

REVIEW: ddd eee fff rrr fff ttt jjj uuu kkk iii
 ddd eee fff rrr fff ttt jjj uuu kkk iii

NEW LETTER: G is typed with the F finger. Notice that G is on the home row. Simply lift the F finger and reach to the right and type G. Then, quickly return the finger to F.

fff fgf ggg fgf fog fog dog dog jog jog
 fff fgf ggg fgf fog fog dog dog jog jog

jug jug dug dug rug rug rig rig fig fig
 jug jug dug dug rug rug rig rig fig fig

dig dig sag sag rag rag tag tag lag lag
 dig dig sag sag rag rag tag tag lag lag

eggs eggs goes goes good good girl girl
 eggs eggs goes goes good good girl girl

SENTENCES: Type each one twice if time permits. If you type each one twice and there is still some time remaining, try typing each one again.

Jodelle got a good grade.
 Jodelle got a good grade.

I guess Lassie is a great dog.
 I guess Lassie is a great dog.

Joe got a good rug for a glad girl.
 Joe got a good rug for a glad girl.

LESSON 10

REVIEW: kkk iii ddd eee lll ooo aaa ;;; lll ...
 kkk iii ddd eee lll ooo aaa ;;; lll ...

NEW LETTER: N is typed with the J finger. Lift the J finger and reach down and slightly toward the left. If you have difficulty in making this reach, raise the K and L fingers and hold them just over the keys as you reach down to type N.

jjj jnj nnn jnj and and and end end end
 jjj jnj nnn jnj and and and end end end

fen fen fin fin fan fan fun fun gun gun
 fen fen fin fin fan fan fun fun gun gun

run run sun sun son son ton ton tin tin
 run run sun sun son son ton ton tin tin

sang sung sing song rang rung ring gone
 sang sung sing song rang rung ring gone

CAPITAL LETTERS (Left-Hand Keys): To make capitals of letters typed with the left hand, depress the right shift key with the SEM (;) finger and hold it down while typing the letter with the correct finger of the left hand. Remember to use the following 1-2-3 motion when typing capitals:

1--Depress shift key 2--Type letter 3--Return little finger

Type each of the following sentences twice.

Sue is a friend of Jane.
 Sue is a friend of Jane.

Dan and Stan are good friends.
 Dan and Stan are good friends.

Ann is getting a red and green dress.
 Ann is getting a red and green dress.

A real king is going to send a sealed note.
 A real king is going to send a sealed note.

LESSON 11

REVIEW: tan tin sin kin din dun nun nut not one
 tan tin sin kin din dun nun nut not one

NEW LETTER: W is typed with the S finger. Try to keep the D and F
 Fingers anchored as you lift the S finger and reach up to type W.

sss sws www sws wow wow woe woe wee wee
 sss sws www sws wow wow wee woe wee wee

was was war war wig wig wit wit wet wet
 was was war war wig wig wit wit wet wet

jaw law awe was war new now owe two two
 jaw law awe was war new now owe two two

know knew well will went were walk down
 know knew well will went were walk down

SENTENCES: Type each of the following sentences as many times as you
 can during the remaining time. See how many lines you can type without
 any errors.

Two would know it if all went well.
 Two would know it if all went well.

Fred and Don went to a wild west rodeo.
 Fred and Don went to a wild west rodeo.

We will do well now in reading and writing.
 We will do well now in reading and writing.

LESSON 12

REVIEW: one and two and one and won and now two
one and two and one and won and now two

NEW LETTER: H is typed with the J finger. It is located on the home row. Raise the J finger and reach to the left. Return to J immediately after typing H.

fff ggg jjj hhh jhj hhh her her hen hen
fff ggg jjj hhh jhj hhh her her hen hen

has has his his hit hit hot hot hat hat
has has his his hit hit hot hot hat hat

had had hug hug how how the the she she
had had hug hug how how the the she she

then then than than thin thin that that
then then than than thin thin that that

RE M I N D E R: Always space twice after a period at the end of a sentence.

SENTENCES (Each one at least twice):

There is her house. He has another house.
There is her house. He has another house.

Halloween night holds fun and treats for all.
Halloween night holds fun and treats for all.

We thought of their dog when we heard that sound.
We thought of their dog when we heard that sound.

LESSON 13

VIEW: has had her hen his hit hot how hut hug
has had her hen his hit hot how hut hug

W LETTER: C is located on the bottom row and is typed with the D finger. Simply raise the D finger and reach down to C. Remember to type each key with a quick sharp stroke.

ddd ded ccc ded cue cue cut cut cur cur
ddd ded ccc ded cue cue cut cut cur cur

car car can can cat cat cot cot cow cow
car car can can cat cat cot cot cow cow

corn corn nice nice once once each each
corn corn nice nice once once each each

close clean class could watch which since
close clean class could watch which since

SENTENCES:

Our uncle and our cousin cannot go.
Our uncle and our cousin cannot go.

The teacher was in the schoolhouse.
The teacher was in the schoolhouse.

Santa Claus will call on our class.
Santa Claus will call on our class.

LESSON 14

REVIEW: ice ice nice nice ace ace face lace race
ice ice nice nice ace ace face lace race

NEW LETTER: Y is located on the third row and is typed with the J finger. Lift the J finger and reach up and to the left. Stretch the J finger so that you can keep K-L-; anchored. Return to J quickly after typing Y.

jjj juj jyj yvy yuy yvy jyj jay jay jay
jjj juj jyj yvy yuy yvy jyj jay jay jay

say say way way day day dye dye lye lye
say say way way day day dye dye lye lye

yes yes shy shy why why you you any any
yes yes shy shy why why you you any any

they they year year your your only only
they they year year your your only only

SENTENCES:

You can type faster than you write if you try.
You can type faster than you write if you try.

Joy and Cathy study the history of their city.
Joy and Cathy study the history of their city.

Friday is the last day of school for the week.
Friday is the last day of school for the week.

LESSON 15

REVIEW:

a;sldkfjghfjdksla;sldkfjghfjdksla;sldkfj
a;sldkfjghfjdksla;sldkfjghfjdksla;sldkfj

jay jay way way why why any any you you
jay jay way way why why any any you you

NEW LETTER: B if typed with the F finger. Lift the F finger, reach down and toward the right, and type the B. This is the longest reach on the keyboard so be sure to S-T-R-E-T-C-H your F finger!

fff fbf bbb fbf bbb bbb fob fob fib fib
fff fbf bbb fbf bbb bbb fob fob fib fib

bid bid bud bud bed bed bad bad ban ban
bid bid bud bud bed bed bad bad ban ban

bag bag bog bog beg beg bug bug bet bet
bag bag bog bog beg beg bug bug bet bet

book book boat boat both both able able
book book boat boat both both able able

SENTENCES:

The big book was about a baby boy.
The big book was about a baby boy.

Class ended because the bell rang.
Class ended because the bell rang.

Lu bought a birthday gift for Bob.
Lu bought a birthday gift for Bob.

LESSON 16

REVIEW: a;sldkfjghfjdksla;sldkfjghfjdksla;sldkfj
a;sldkfjghfjdksla;sldkfjghfjdksla;sldkfj

big big bow bow but but bad bad bee bee
big big bow bow but but bad bad bee bee

NEW LETTER: M is typed with the J finger. Simply lift the J finger and reach down and toward the right (just pull your J finger in toward the palm of your hand). As soon as you type M return to the J key.

jjj jmj mmm jmj jam jam lam lam mad mad
jjj jmj mmm jmj jam jam lam lam mad mad

hem hem gem gem met met mid mid him him
hem hem gem gem met met mid mid him him

sun sun hum hum mud mud man man men men

name name them them time time from from
name name them them time time from from

SENTENCES:

Bill met Mike at the market.
Bill met Mike at the market.

Some of them come from Mars.
Some of them come from Mars.

Ed needs some time to study.
Ed needs some time to study.

LESSON 17

REVIEW: a;sldkfjghfjdksla;sldkfjghfjdksla;sldkfj
a;sldkfjghfjdksla;sldkfjghfjdksla;sldkfj

May May Mel Mel Sam Sam Jim Jim Tom Tom
May May Mel Mel Sam Sam Jim Jim Tom Tom

NEW LETTER: V is typed with the F finger. Just lift the F finger and reach down and slightly to the right.

fff fvf vvv fvf vow vow vat vat vet vet
fff fvf vvv fvf vow vow vat vat vet vet

have have gave gave love love move move
have have gave gave love love move move

live live give give very very ever ever
live live give give very very ever ever

every every never roves saved dives visit
every every never roves saved dives visit

SENTENCES:

She will give me a very good grade.
She will give me a very good grade.

I have to vote for my favorite man.
I have to vote for my favorite man.

Dora has a holiday at Thanksgiving.
Dora has a holiday at Thanksgiving.

LESSON 18

REVIEW: a;sldkfjghfjdksla;sldkfjghfjdksla;sldkfj
a;sldkfjghfjdksla;sldkfjghfjdksla;sldkfj

give give have have very very ever ever
give give have have very very ever ever

NEW LETTER: P is typed with the ; (SEM) finger. Raise the ; finger and reach up to P. Be sure to keep your fingers curved over the keys at all times. If they are properly curved, this reach will not be difficult. Try to type P without moving your elbow.

;;; ;p; ppp ;p; pad pad pat pat pal pal
;;; ;p; ppp ;p; pad pad pat pat pal pal

pod pod pot pot pit pit pig pig pin pin
pod pod pot pot pit pit pig pig pin pin

pen pen pet pet pep pep pup pup put put
pen pen pet pet pep pep pup pup put put

R E M I N D E R: Always leave two spaces after a period at the end of a sentence, but leave only one space after a period which ends an abbreviation.

PARAGRAPHS: Type the following paragraph at least twice. Although this one is double-spaced, you should type yours without the blank spaces between lines. This copy is double-spaced to make it easier to read. See if you can type the entire paragraph without any errors.

Mrs. Bishop and Mrs. Bowers both teach
typing. Mrs. Hipp is a friend of both
Mrs. Bowers and Mrs. Bishop. She also
teaches typing. All three of them are
good teachers.

LESSON 19

REVIEW: a;sldkfjghfjdksla;sldkfjghfjdksla;sldkfj
a;sldkfjghfjdksla;sldkfjghfjdksla;sldkfj

pore pore pour pour poor poor play play
pore pore pour pour poor poor play play

NEW LETTER: Q is typed with the A finger. Keep all your fingers curved as you raise the A finger and reach up to type Q. Do not move your elbow while typing Q.

aaa aqa qqq aqa qqq quit quit quid quid
aaa aqa qqq aqa qqq quit quit quid quid

quip quip quad quad quay quay quit quit
quip quip quad quad quay quay quit quit

quick quack quite quiet quill quilt quote
quick quack quite quiet quill quilt quote

PARAGRAPH: Type the following paragraph at least twice. Remember to single space your paragraph, but leave a double space before typing it the second time.

Quite often the teacher asked him to be
quiet but he would not quit talking. A
student nearby quoted a poem which told
how rude it was to make noise when some
other person was talking.

LESSON 20

REVIEW: a;sldkfjghfjdksla;sldkfjghfjdksla;sldkfj
a;sldkfjghfjdksla;sldkfjghfjdksla;sldkfj

NEW LETTERS: X is typed with the S finger. Simply raise the S finger, reach down, and type X.

sss sxs xxx sxs six six fix fix mix mix
sss sxs xxx sxs six six fix fix mix mix

sax sax wax wax tax tax tux tux fox fox
sax sax wax wax tax tax tux tux fox fox

Z is typed with the A finger. Raise the A finger, reach down, and type Z.

aaa aza zzz aza zoo zoo zip zip zag zag
aaa aza zzz aza zoo zoo zip zip zag zag

hazy hazy lazy lazy zero zero zone zone
hazy hazy lazy lazy zero zero zone zone

PARAGRAPH: Type the short paragraph below during the remainder of the period. Remember to single space the paragraph, but leave a double space before typing it the second time. Try to type it at least one time without an error, but type it as fast as you can.

A man should do what he can to help his
pals when they need it. To give aid to
a pal is very good.

LESSON 21

REVIEW: a;sldkfjghfjdksla;sldkfjghfjdksla;sldkfj
a;sldkfjghfjdksla;sldkfjghfjdksla;sldkfj

a to do it is he to do it is he his his
a to do it is he to do it is he his his

man can aid pal day man can aid pal day
man can aid pal day man can aid pal day

when they turn what when they turn what
when they turn what when they turn what

give very good duty give very good duty
give very good duty give very good duty

your need help each your need help each
your need help each your need help each

PARAGRAPH: Type the following paragraph at least one time. Try to type it rapidly without any errors. You will notice that it is the same paragraph you typed yesterday with one new sentence added.

A man should do what he can to help his
pals when they need it. To give aid to
a pal is very good. It is your duty to
help.

After typing the above paragraph, insert a clean sheet of paper in the typewriter and type your name at the top of it. Your teacher will direct you as you type the paragraph two or three times for one minute each time. You should start typing immediately when she says BEGIN. Be sure to stop typing when she calls STOP. If you type all the paragraph before she calls stop, return the carriage and begin typing it again. Single space each paragraph, but space five times between paragraphs. Remember to type as rapidly and as accurately as you can!

LESSON 22

REVIEW: a;sldkfjghfjdksla;sldkfjghfjdksla;sldkfj
 a;sldkfjghfjdksla;sldkfjghfjdksla;sldkfj

when when they they turn turn what what
when when they they turn turn what what

give give very very good good duty duty
give give very very good good duty duty

your your need need help help each each
your your need need help help each each

PARAGRAPH: Practice typing the following paragraph until your teacher tells you to stop. Type as accurately and as rapidly as you can.

A man should do what he can to help his
pals when they need it. To give aid to
a pal is very good. It is your duty to
help. Do a good turn each day and help
someone in need. It is a fine thing to
do.

Today you will be timed while typing for three minutes. Insert a clean sheet of paper in the typewriter and type your name at the top. Start typing the above paragraph immediately when the teacher says BEGIN. Be sure to stop typing when she calls STOP. If you type all the way to the end of the paragraph before time is called, return the carriage and type the paragraph again. After time is called, space up five spaces and get set to type the entire paragraph again. Try to do your best typing on this exercise.

LESSON 23

REVIEW: aaa aqa sss sws ddd ded asd asd qwe qwe
 aaa aqa sss sws ddd ded asd asd qwe qwe

NUMBERS 1, 2, and 3: The number 1 is located on the extreme left end of the top row of keys. It is just over and slightly left of the Q. Use the A finger to type the 1. (NOTE: Many typewriters do not have the number 1 on them. When typing on such a machine, use the little L for the number 1.)

aaa aqa qqq q1q 111 111 1 and 11 and 111
 aaa aqa qqq q1q 111 111 1 and 11 and 111

The number 2 is located next to the 1. It is just over the W and slightly to the left. Use the S finger to type the 2.

sss sws www w2w 222 222 2 and 22 and 222
 sss sws www w2w 222 222 2 and 22 and 222

The number 3 is located next to the 2. It is just above and to the left of the E. Use the D finger to type the 3.

ddd ded eee e3e 333 333 3 and 33 and 333
 ddd ded eee e3e 333 333 3 and 33 and 333

Now try typing the following lines which contain the numbers which you have just learned.

1 and 2 and 3 and 11 and 22 and 33 and 1
 1 and 2 and 3 and 11 and 22 and 33 and 1
 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3
 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3
 11, 12, 13, 21, 22, 23, 31, 32, 33, 123
 11, 12, 13, 21, 22, 23, 31, 32, 33, 123

NOTE: Type the comma (,) with the K finger. Simply lift the K finger up, reach down and slightly to the right, and type the comma.

LESSON 24

VIEW: fff jjj frf juj ftf jyj ttt yyy ttt yyy
 fff jjj frf juj ftf jyj ttt yyy ttt yyy

NUMBERS 4, 5, and 6: The number 4 is located next to the 3. It is above and slightly left of the R. Type the 4 with the F finger.

fff frf rrr r4r 444 444 4 or 44 or 444
 fff frf rrr r4r 444 444 4 or 44 or 444

The number 5 is located next to the 4. It is above and slightly to the right of the R. Type the 5 with the F finger.

frf rrr rtr r5r 555 555 5 or 55 or 555
 frf rrr rtr r5r 555 555 5 or 55 or 555

The number 6 is located next to the 5. It is above and slightly to the left of the Y. Type the 6 with the J finger.

jjj jyj yyy y6y 666 666 6 and 66 and 666
 jjj jyj yyy y6y 666 666 6 and 66 and 666

Type the following lines which contain all the numbers which you have learned.

4 or 5 or 6 or 44 or 55 or 66 or 456 or 654
 4 or 5 or 6 or 44 or 55 or 66 or 456 or 654

1 2 3 4 5 6 12 13 14 15 16 22 23 24 25 26
 1 2 3 4 5 6 12 13 14 15 16 22 23 24 25 26

16 26 36 46 56 61 62 63 64 65 656 646 636
 16 26 36 46 56 61 62 63 64 65 656 646 636

LESSON 25

REVIEW: jjj kkk lll juj uuu kik iii lll lol uio
 jjj kkk lll juj uuu kik iii lll lol uio

NUMBERS 7, 8, and 9: The number 7 is located next to the 6. It is above and slightly left of the U. Type the 7 with the J finger.

jjj juj uuu u7u 777 777 7 and 77 and 777
 jjj juj uuu u7u 777 777 7 and 77 and 777

The number 8 is located next to the 7. It is above and slightly left of the I. Type the 8 with the K finger.

kkk kik iii i8i 888 888 8 and 88 and 888
 kkk kik iii i8i 888 888 8 and 88 and 888

The number 9 is located next to the 8. It is above and slightly left of the letter O. Type the 9 with the L finger.

lll lol ooo o9o 999 999 9 and 99 and 999
 lll lol ooo o9o 999 999 9 and 99 and 999

1 2 3 4 5 6 7 8 9 2 6 3 7 4 8 5 9 7 8 9
 1 2 3 4 5 6 7 8 9 2 6 3 7 4 8 5 9 7 8 9

56 47 38 29 65 74 83 92 59 48 37 26 16
 56 47 38 29 65 74 83 92 59 48 37 26 16

656 565 747 474 838 383 929 292 919 191
 656 565 747 474 838 383 929 292 919 191

LESSON 26

REVIEW: a ; s l d k f j g h f j d k s l a ; a ;
 a ; s l d k f j g h f j d k s l a ; a ;

THE ZERO: The ZERO is the last number on the right end of the top row.
 Type ZERO with the ; finger.

;;; ;P; ppp pOp 000 000 900 800 700 600
 ;;; ;P; ppp pOp 000 000 900 800 700 600

THE SYMBOLS: Each number key also contains a symbol. To type the symbols, depress the shift key and strike the number key. Release the shift. Be sure to type symbols and numbers with the correct fingers. Type two lines of each of the following drills on symbols.

The QUOTATION MARK is used to indicate exact quotations:

sss sws www w2w 2"2 2"2 2"2 "2" "2"
 sss sws www w2w 2"2 2"2 2"2 "2" "2"

The NUMBER SIGN (#) is sometimes used to represent NUMBER; it is also used sometimes to indicate POUNDS:

ddd ded eee e3e 333 3#3 3#3 3#3 #3# #3#
 ddd ded eee e3e 333 3#3 3#3 3#3 #3# #3#

The DOLLAR MARK is used when expressing amounts of money in figures:

fff frf rrr r4r 444 4\$4 4\$4 4\$4 \$4\$ \$4\$
 fff frf rrr r4r 444 4\$4 4\$4 4\$4 \$4\$ \$4\$

The PER CENT sign is used with figures to indicate percentages:

fff frf rrr r5r 555 5%5 5%5 5%5 %5% %5%
 fff frf rrr r5r 555 5%5 5%5 5%5 %5% %5%

The UNDERSCORE is used to underline typewritten material:

jjj jyj yyy y6y 666 6_6 6_6 6_6 _6_ _6_
 jjj jyj yyy y6y 666 6_6 6_6 6_6 _6_ _6_

LESSON 27

REVIEW: a ; s l d k f j g h f j d k s l a ; a ;
 a ; s l d k f j g h f j d k s l a ; a ;

SYMBOLS: Below are some more symbols found on your typewriter. All of these are located on the top row of keys.

The AMPERSAND is used as a symbol for the word AND:

jjj juj uuu u7u 777 7&7 7&7 7&7 &7& &7&
 jjj juj uuu u7u 777 7&7 7&7 7&7 &7& &7&

The APOSTROPHE is used to show possession and to form contractions:

kkk kik iii i8i 888 8'8 8'8 8'8 '8' '8'
 kkk kik iii i8i 888 8'8 8'8 8'8 '8' '8'

The PARENTHESES are sometimes used to enclose explanatory matter in sentences:

lll lol ooo o9o 9(9 9(9 9(9 9(9(
 lll lol ooo o9o 9(9 9(9 9(9 9(9(
 ;;; ;p; ppp pOp O)O O)O O)O)O))O)
 ;;; ;p; ppp pOp O)O O)O O)O)O))O)

The HYPHEN is used to separate words between syllables (you do not need to shift when typing the HYPHEN):

;;; ;p; ppp p-p --- --- -O- -O- -O- ---
 ;;; ;p; ppp p-p --- --- -O- -O- -O- ---

The ASTERISK is usually used to refer to explanatory notes at the bottom of a page (you must shift when typing the ASTERISK):

;;; ;p; ppp p-p --- -* - - - -* -
 ;;; ;p; ppp p-p --- -* - - - -* -

NOTE: The UNDERSCORE (over the 6 key) is used to underline words. The HYPHEN is used to separate words between syllables and is also used as a dash.

Operative Parts of the Typewriter

MARGIN CONTROLS: Behind the part of the machine on which the paper rests when inserted in the typewriter are two large black MARGIN CONTROLS. Each one has a white mark in the middle. These are used to change the margins. You may either lengthen or shorten your writing line by moving the margin controls. To move them, simply push slightly down and then move either right or left. Try setting the following margins:

LEFT: 12 RIGHT: 72 (This gives a 60-space line)

LEFT: 17 RIGHT: 67 (This gives a 50-space line)

There are 84 spaces on a standard size sheet of typing paper. This means that Space # 42 is the middle point of the paper. Therefore, if you wish to use a 50-space writing line and want it to be centered on the paper, you put half of the 50 spaces on each side of Space # 42. Half of 50 is 25, so subtract 25 from 42 and set the left margin at 17; then add 25 to 42 and set the right margin at 67. You can center any length writing line by this method.

Occasionally you might be typing and come to the end of your line while typing a word. If the carriage locks, you can type beyond the margin by tapping the MARGIN RELEASE key (marked M.R. and located at the right end of the top row of keys).

THE TABULATOR: The tabulator (called TAB) is used to indent material. Two keys control the tabulator. The TAB CONTROL is located on left side of the keyboard on the frame of the machine. The word TAB appears under the key with an S above it and a C below it.

The first step is to clear all tab stops. To do this, depress the TAB key located at the right end of the third row of keys. When the carriage stops, push TAB CONTROL to C (this stands for CLEAR). Depress TAB again and when carriage stops, clear the tabulator. Continue on in this manner until all tabulator stops are cleared.

Next, return carriage to the left. Tap space bar five times and push TAB CONTROL to S (this stands for SET). Return carriage, tabulate (depress TAB), and carriage should move in five spaces and stop. You may set up tabulator stops anywhere on the carriage by following these steps.

DOUBLE-SPACING: The material on this page is single-spaced, that is, it is typed without any blank lines between the typed lines. Sometimes you might want to type material and leave one or two blank lines between each line of typing. To do so, you move the LINE SPACE REGULATOR (the flat piece of metal with a red stripe on it located at the left end of the cylinder--it has the numbers 1, 2, and 3 beside it) to either 2 (for double-spacing) or to 3 (for triple-spacing).

BACK-SPACING: Sometimes when typing you might not strike a key with enough force to make the letter appear clearly on your paper. In such a case, you can backspace and re-type the letter. The BACKSPACE key is located at the left end of the third row of keys. Simply depress it one time for each space you need to move back.

RIBBON INDICATOR: This is a small switch located on the right side of the keyboard, just above the top row of keys. There are three positions for the RIBBON INDICATOR and these are represented by blue, white, and red dots. When the indicator is on blue, you type on the top part of the ribbon and your typing appears black. When the indicator is on white, you do not type on the ribbon at all (this is used only for typing stencils). When the indicator is on red, you type on the bottom part of the ribbon and your material appears red.

SHIFT KEY LOCKS: When typing an entire word, phrase, or sentence in all CAPITAL LETTERS you lock the shift key. There are two SHIFT LOCKS. They are located just above the shift keys at the right and left ends of the home row. To lock the shift, simply depress either shift lock key until you hear a click. To unlock the shift, depress the shift key and then release it.

Now you will type a very special assignment. You must follow directions exactly. First, set up your machine as follows:

1. Set a tab stop at Space # 65. Space numbers appear in the square opening beneath the ribbon at the point where the typebars strike the paper. To set a tab stop remember to first clear out all previous tab stops.
2. Switch ribbon indicator to RED.
3. Lock shift key.
4. Set LEFT margin at 50 and RIGHT margin at 80.
5. Fold a sheet of white typing paper in half (fold from top to bottom). Crease the fold so that it can be inserted in the machine. Insert paper in typewriter with folded side going in first. Be sure that PAPER GUIDE is set on zero and that paper rests against paper guide while going in the typewriter.
6. Now, follow the typing directions on the next page. Be very careful to follow each step exactly as it is shown.

Space down from the top of paper 6 lines before beginning to type.

1. Tabulate. Type 1 asterisk. Return.
2. Tabulate. Backspace 1 time. Type 3 asterisks. Return.
3. Tabulate. Backspace 2 times. Type 5 asterisks. Return.
4. Tabulate. Backspace 3 times. Type 7 asterisks. Return.
5. Tabulate. Backspace 4 times. Type 9 asterisks. Return.
6. Tabulate. Backspace 5 times. Type 11 asterisks. Return.
7. Tabulate. Backspace 6 times. Type 13 asterisks. Return.
8. Tabulate. Backspace 7 times. Type 15 asterisks. Return.
9. Tabulate. Backspace 8 times. Type 17 asterisks. Return.
10. Tabulate. Backspace 9 times. Type 19 asterisks. Return.
11. Tabulate. Backspace 10 times. Type 21 asterisks. Return.
12. Tabulate. Backspace 11 times. Type 23 asterisks. Return.
13. Tabulate. Backspace 12 times. Type 25 asterisks. Return.
14. Tabulate. Backspace 1 time. Type 1 asterisk. Tap space bar 1 time.
Type 1 asterisk. Return.
15. Tabulate. Backspace 1 time. Type 1 asterisk. Tap space bar 1 time.
Type 1 asterisk. Return.
16. Tabulate. Backspace 1 time. Type 1 asterisk. Tap space bar 1 time.
Type 1 asterisk. Return.
17. Tabulate. Backspace 1 time. Type 1 asterisk. Tap space bar 1 time.
Type 1 asterisk. Return.
18. Tabulate. Backspace 3 times. Type 7 asterisks. Return.
19. Tabulate. Backspace 3 times. Type 7 asterisks. Return.
20. Remove paper from typewriter!

Now, insert the same piece of paper in the typewriter again. This time insert the folded side first but the picture you made above should go in upside down. Set your machine for DOUBLE-SPACING and start typing the following 6 lines down from the creased edge of the paper.

1. Tabulate. Type 1 asterisk. Return (remember you are double-spacing).
2. Tabulate. Backspace 1 time. Type the word MAY. Return.
3. Tabulate. Backspace 3 times. Type ALL THE. Return.
4. Tabulate. Backspace 5 times. Type HAPPINESS A. Return.
5. Tabulate. Backspace 7 times. Type MERRY CHRISTMAS. Return.
6. Tabulate. Backspace 9 times. Type BRINGS BE YOURS FOR. Return.
7. Tabulate. Backspace 11 times. Type ALL THE COMING NEW YEAR. Return.
8. Tabulate. Backspace 1 time. Type 1 asterisk. Space. Type 1 asterisk. Return.
9. Repeat Line #8.
10. Tabulate. Spell out your name silently, backspacing 1 time for each 2 letters and spaces in your name. Type your name starting at the point where you stop spelling and backspacing. (Note: If your name is JOHN SMITH, you would say JO and backspace once, then say HN and backspace once, then say SPACE S and backspace once, then MI and backspace once, then TH and backspace once. Then type JOHN SMITH and this will center the name. If your name does not have an even number of letters and spaces, do not backspace for the extra letter at the end.)
11. Remove paper from typewriter and fold from left to right so that the message you have typed will be inside.

The purpose of this unit is to improve typing skill (increase both speed and accuracy). There will be ten lessons in this unit.

All lessons will be typed with the same machine set-up. Margins should be set as indicated in Lesson 1. The extra five spaces included in the writing line are to take care of the ringing of the bell at the end of the line. These extra spaces will be needed when students begin typing compositions on their own.

The tabulator is used only at the beginning of the paragraphs in these lessons.

The lines of drill words and sentences are shown in the students' copy only one time, but they should type each line at least twice. Some students will be able to type the drill lines three or more times. It is suggested that about half of the typing period be devoted to typing the drill lines (approximately 10 to 12 minutes).

The paragraphs should be typed as many times as the students can in the time available. The main purpose of these is to build typing speed while getting accustomed to typing complete sentences which are built around a unifying thought.

There is a note at the bottom of Lesson 2. This should be explained before students begin typing the paragraph in the lesson. This is the only new technique introduced in the first six lessons.

LESSONS 7 - 10

Lessons 7, 8, and 9 are a continuation of the skill building drills and paragraphs previously used. Students are reminded at the beginning of Lesson 7 to set their machines for a 60-space writing line (left margin on 12 and right margin on 77--actually 65 spaces). They are reminded also to type each line of drill twice. The drill words are taken from the paragraph which follows.

As preparation for Lesson 10, it is suggested that you time the students some each day starting with Lesson 7. Probably the best plan would be to let them drill on the words for about 10 or 12 minutes, then type on the paragraph for about 8 or 10 minutes, and then take a one-minute timed writing on the paragraph. This should help get them accustomed to timed writings before Lesson 10 in which they will be doing a timed writing for the record.

Lesson 10 instructs students in counting words in typing. Any line of typed material can be counted easily by the following process: 1--leave the carriage at the point where the writing stops; 2--subtract the left margin setting (in this case 12) from the number of the space on which the writing stops; 3--this gives the total strokes (letters and spaces) typed on that line; 4--divide the total strokes typed 5 to determine the total words typed on that line.

LESSONS 7 - 10--Continued

In Lesson 10, students should spend approximately 10 minutes typing the paragraph. They should be encouraged to type over and over any word which gives them difficulty. For example, the word "proud" in the last line might be difficult for some to type; if so, they should practice typing the word over and over for a full line. Then, on a clean sheet of paper they should type their names. Time them while they type the paragraph for one minute. After that writing, they should be timed two more times (a total of three one-minute writings). Finally, on the back of the paper, have them type on the paragraph for three minutes. If any student completes the paragraph before time is called, he should start over again at the beginning of the paragraph.

Students should be reminded to set machines for double spacing. The line space regulator is located at the left end of the carriage and is marked 1-2-3. After each one-minute writing, ask them to space down four or five times.

The paragraph used in Lesson 10 was used previously in Lesson 4. It is a good paragraph for rapid and accurate typing. The copy here is triple-spaced. If anyone notices and questions this, it was done to make it easier for them to read as they typed.

In this unit you will improve your typing skill. Type each drill line (words, phrases, and sentences) at least twice. Your teacher will tell you how many times to type each paragraph.

MARGINS: Set a 60-space writing line (left margin on 12 and right margin on 77--this allows five extra spaces in the writing line).

TABULATOR: Set the tabulator to indent five spaces (Tab Stop should be set at 17).

SPACING: Single-space lines of drills. Double-space between repeated lines of drills. Double-space all paragraph typing.

DRILL WORDS (type each line twice)

as on ad in ax my are you red oil car nip war pup set mop dew
it or do he so of and lap aid hen she map six man for pry the
Your typing stroke should be like lightning--quick and sharp.
Keeping both feet flat on the floor helps boost typing speed.

PARAGRAPH

Many people read for pleasure and for profit. It can be an enjoyable experience. Learning to read well is one of the best abilities anyone can develop. There are hundreds of new and old books available and they contain much valuable truth. Develop the ability to read well. It will open new worlds to you for the rest of your life.

Follow the same directions that were given in the first lesson of this Unit.

DRILL (each line at least twice)

sat kin was hip fat hop saw ill bag pun bet joy tea hum web
me to if am rod men toe pan bug own end has via lad cod pig

SENTENCES (each one at least twice)

Return the carriage without looking up; this improves typing.
Watch your copy instead of your fingers and be a good typist.

PARAGRAPH

Typed material is different from that which you write by hand. In typing, each space on the line is controlled by the typist. In order to make your typed papers neater and easier to read, there are a few rules which should be followed. The period is used after abbreviations and after contractions and also at the end of sentences. You should space twice after a period which ends a sentence; space only once after all other periods. This does not apply to typing decimals in figures.

Note: To underline a word follow these steps: Type the word. Backspace to the first letter in the word (an easy way to do this is to spell the word while backspacing once for each letter in the word). Then shift with the A finger and strike the 6 key as many times as there are letters in the word being underlined.

LESSON 3

II

VIEW: (Each line at least twice)

a b c d e f g h i j k l m n o p q r s t u v w x y z a b c d e
by of the ice was one ago hot and out ran had and use the hit
at in so on soda made sold many they hand time they with thus

SENTENCES: (Each one at least twice)

Tell the teacher how much you enjoy reading books and poems.
Becoming a good reader makes one a better student in school.

PARAGRAPH:

The first ice cream soda was made by accident. A great many years ago, a small drug store sold a drink made of ice, sweet cream, and flavored syrup. One hot afternoon, while a crowd was in the store, they ran out of sweet cream. At the time this happened, they had plenty of ice cream on hand, so they decided to use it instead of the sweet cream. It was a hit with the crowd, and thus was born the ice cream soda.

LESSON 4

II

REV: (Each line at least twice)

aA bB cC dD eE fF gG hH iI jJ kK lL mM nN oO pP qQ rR sS tT
in to or do you try man who his see put way pay and off are
it at by of must best your work play does best will goal than

TENCES: (Each one at least twice)

Put the book on the table and let it stay there for an hour.
Ask the man and the boy if they will go to the fair with us.

AGRAPH:

You must always try to do your best in school and while
you are at work or play. The man who does his best will see
his goal sooner than those who falter by the way. Always be
alert and put forth your best effort. It will pay off, You
will be proud that you did the best you could.

LESSON 5

II

VIEW (Each line at least twice)

a ; s l d k f j g h f j d k s l a ; s l d k f j g h f j d k
it is to of hot day the ice and can any who hot day the ice
most like into cool snow take have nice year swim also they
there those these pools lucky where there those these where

SENTENCES (Each one at least twice)

We go to school each day of the week. We try to be on time.
Most boys and girls like to type. They also like to create.

PARAGRAPH (Type it as many times and as accurately as you can)

Most people like to jump into a cool pool on a hot day.
After the snow and ice of winter have melted and the weather
gets hot, it is nice to take a swim. Of course, there are a
number of places where people can swim any time of the year.
There are also those who have heated pools indoors and these
lucky ones can swim any time they desire.

LESSON 6

II

REVIEW (Each line at least twice)

to do so if it is an am he me us to go to do so if it is an
and may man end tie hen big tip sit owe got too use our bus
also many elks kept into ring odor coal used push then than
ample flair eight panel inset title ought total usual rural

SENTENCES (Each one at least twice)

The eight boys and girls visited some urban and rural areas.
Bells will ring when it is time to begin studies for today.

PARAGRAPH (Type it as many times and as accurately as you can)

Many years ago an old woman lived all alone in a forest.
She had no close friends nor relatives and very few visitors.
She had a most unusual house, however. It seems that instead
of wood, her home was made of gingerbread. Can you imagine a
house such as that standing out in the rain and snow? People
say that boys and girls ate her out of her house and home.

REMINDER: Set your machine for a 60-space writing line (left margin on 12 and right margin on 77). Set the tabulator to indent five spaces (Tab set at space 17). Type each line of drill words twice; type the paragraph as many times as you can during the typing period.

DRILL WORDS

the she for the she for had her his had her his old big and
when went when went long girl long girl cane blue cane blue
they them that they them that hair held hand hair held hand
black blind other along black blind other along other along
walk walked slow slowly limp limped walk slow walked slowly
lead leading reach reached notice noticed lit little little

PARAGRAPH

The man and the girl walked slowly along the road. She had long black hair, big blue eyes, and her cheeks were red. They held each other by the hand as they walked. The man, a cane in his hand, limped as they went along. When I reached them, I noticed that the little girl was leading the old man for he was blind.

LESSON 8

II

DRILL

big but big but not one not one its sky its sky the top the
just from just from snow most snow most come over come over
rapt peak rapt peak into name into name this city gaze gaze
world cloud world cloud hides rises hides rises great great
sight sights might mighty alway always wonder nature called
outside tourists attention, sometimes beautiful, beautiful,
largest complete mountains, sometimes beautiful, attention,

PARAGRAPH

Just outside the largest city in Japan there is a great big mountain. It is one of the most beautiful sights in all the world. It rises up and up into the sky, and sometimes a cloud hides its peak. On the top there is always snow. The mighty mountain is called Fuji, but this is not its complete name. Tourists come from all over the world to gaze in rapt attention at this wonder of nature.

DRILL

not any and not any who has the who has but can our but can
fine live good fine live good earn most high earn most high
thing where girls enjoy going learn today group every count
school college university universities education possession
degree desires citizen usual unusual unusually universities
become almost through country privilege valuable possession

PARAGRAPH

It is a real fine thing to live in a country where boys
and girls enjoy the privilege of going to school to learn to
become good citizens. Not only can everyone go through high
school, but today all can go to college. Our country has an
unusually fine group of colleges and universities and almost
any boy or girl who desires to can earn a college degree. A
good education is a most valuable possession.

LESSON 10

II

DIRECTIONS: In this lesson you will take some timed writings in order to determine how fast and how well you can type. In typing, each five strokes (letters, spaces, punctuation marks, etc.) are counted as one word. This is done because some words (such as to, do, in, an, etc.) are very short while others are very long. In the paragraph below, each line except the first and last lines, has exactly 60 strokes in it. Since 5 strokes equal one word, divide 5 into 60 and you find that each line equals 12 words.

This paragraph is not new to you; it has been typed in a previous lesson. Your teacher will give you a few minutes in which to practice typing it. You should practice typing any difficult words over and over until you can type them with ease. Then, insert a clean sheet of paper in the typewriter, type your name at the top, and your teacher will time you as you type the paragraph several times.

You must always try to do your best in school and while you are at work or play. The man who does his best will see his goal sooner than those who falter by the way. Always be alert and put forth your best effort. It will pay off. You will be proud that you did the best you could.

UNIT III

The lessons in this unit are designed to lead students into composing their own thoughts on the typewriter. Throughout the unit they should use a 60-space writing line (left margin on 12 and right margin on 77). They should use double-spacing and a 5-space paragraph indentation.

Lessons 1 and 2 consist of several questions. These questions should be read aloud by the teacher. Ask them slowly so that students can understand clearly. Students should type correct answers to the questions. Lesson 1 explains the procedure for typing numbers and then indenting to type the answers. Should any answer require more than one line, students should begin typing the second line of the answer on the very first space of the line, directly beneath the number. Lesson 1 also explains the ringing of the bell and the operation of the margin release key.

Lesson 3 introduces descriptions of persons. Description No. 1 is supposed to be President John F. Kennedy. Description No. 2 is supposed to be Snow White. After these have been read to the class and they have guessed the identity of the people described, the teacher should describe at least two students (a boy and a girl) who are present in the class. The descriptions should contain those elements essential to an adequate description of any person. Students should be able to guess the person being described. Then, have each student type a description of some other student in the class. If time permits, have students type at least two descriptions, one of a boy and one of a girl. Again if time permits, students probably will enjoy reading their descriptions aloud for the rest of the class to try and guess the persons described.

Lesson 4 requires students to describe, in detail, some winter sport. Please stress with them the importance of being very explicit. Baboo should be considered totally uninformed on everything pertaining to cold weather.

Lessons 5 through 9 provide short "lead-ins" and require students to use them as a point of departure. Students should copy the lead-ins accurately and then continue writing after the copy ends. They may use their imaginations, memories, or dreams and type any kind of story or article. It is suggested that Lesson 5 be used immediately following Lesson 4, but that the remaining lessons be saved and used during future creative writing periods.

If you find the device in the last five lessons successful, there are many more available. They can be prepared in lessons such as these or given to you for use on the chalkboard, whichever you desire.

Lesson 1

Directions: In this unit you will learn to think and compose while typing so that you will be able to type stories, poems, outlines, and other school work. In some of the lessons in this unit your teacher will read certain questions to you. As soon as the question is asked, think of the correct answer and type the answer on your paper. You will notice that some of the questions may be answered with only one or two words; others will require complete sentences.

Set your machine for a 60-space writing line. Double-space all writing. Set a Tab Stop to indent five spaces. In the first two lessons of this unit there will be a list of several questions to be answered. You are to number your answers in the following manner: Type the number on the very first space of the line, then type a period immediately following the number. After typing the period, tabulate and type your answer. Your paper should look like this:

1. First answer here.
2. Second answer here.
3. Third answer here. Continue on in this manner for each answer.

If you type all the way to the end of the line, you will notice that the bell on the typewriter rings a few spaces before the carriage stops. This bell is a warning that you are nearing the end of the line. When it rings, you should finish typing the word you are on and return the carriage. If it is a long word and the carriage locks before you finish typing it, tap the MARGIN RELEASE key and this will permit you to type beyond the right margin.

Now your teacher will ask you the following questions. Listen carefully to the question, think clearly about what you wish to answer, and then type your answer.

1. What is your full name?
2. Which do you like best, movies or television?
3. What is your favorite television program?
4. Which day (or days) of the week is your favorite television program on?
5. At what hour of the day does your favorite television program come on?
6. What is the name of your favorite character on this television program?
7. Describe whatever there is about your favorite character that makes you like him or her.

Lesson 2

III

Directions: Keep the same 60-space writing line for all lessons in this unit. Double-space all typing, and keep a 5-space paragraph indentation (Tab Stop).

Answer the following questions which your teacher will ask. Remember to listen to each question carefully, think about what you want to answer, and then type your answer.

What is the name of the school you attended last year?

What grade were you in last year?

Who was your teacher last year?

What subject (or subjects) do you like best in school this year?

What game (or games) or sport do you most enjoy playing when you are not in school?

About how many months are there left before summer vacation begins?

What do you want to do during your vacation next summer?

Directions: In this lesson you will learn something about describing people. First, your teacher will read the two descriptions below (see if you can guess the person being described each time). Listen carefully to the descriptions, and pay close attention to the kinds of information given about each person. The persons described here might be either real or fictional characters.

(NOTE: In typing, the apostrophe may be used to indicate feet and the quotation marks may be used to indicate inches. These punctuation marks may be used for this purpose only when they are typed with figures.)

DESCRIPTION NO. 1

This is a man who is 43 years of age. He is about 5'11" tall. He is married and has two children, a girl and a boy. He has brown hair (and lots of it!), blue eyes, and his complexion is fair. He usually wears dark suits. He served in the Navy during World War II. For several years he served as a senator from Massachusetts. On January 20, 1961, he began a new job.

From the above description can you name this man?

DESCRIPTION NO. 2

This is a young girl, probably about 10 or 12 years of age. She is about 4'6" tall. Her hair is black and her eyes are blue. Her complexion is very light; it is so light that it has been described as pure white. She does not go to school. Instead, she works all day cooking, cleaning, sewing, and doing other household chores. She shares a home with seven men. Although all seven of the men are older than she is, she is taller than any of them.

From the above description can you name this girl?

Now, listen carefully to your teacher. She will describe at least two students in your class. Pay close attention to such things as her description of their age, height, color of eyes, color of hair, complexion, dress, activity, etc. See if you can name the person being described each time.

Typing descriptions: Type a description of a boy or girl in your class. See if you can describe them in your typing so that other members of the class would recognize them. Then, type a description of another classmate. If you described a boy the first time, try typing a good description of a girl this time. If you chose a girl the first time, describe a boy this time. Remember that the value of your description will be based on how clearly you have pictured the person you are describing.

Lesson 4

III

Directions: Study the information given below very carefully. After you have read and understand these instructions, type the information requested.

Baboo is the name of a native boy who lives on an island in the South Pacific. He is ten years old. He has never seen a movie nor watched any television program, because the island on which he lives is quite remote. He attends a small island school but it is very different from our schools.

Baboo enjoys going to school, but he is happiest when school is out. It is then that he can engage in his favorite games and sports. He enjoys swimming, sailing in a canoe, fishing with spears, climbing palm trees, and just walking through the woods to observe the various tropical birds. It is very hot on his island.

Baboo has never heard of snow, and he does not know what cold weather is like. He has never seen a picture of ice skates nor sleds nor skis. Assume that you are writing a page for him to read in which you describe a winter sport. You may choose any sport, but be sure it is one that is played only in cold weather areas. Try to explain the sport that you choose so that he would understand clearly how it is played. Remember, if you mention such things as snow, skis, skates, sleds, etc., you will need to describe them for him. Think about the sport or game as you type, and see how completely you can describe it.

Lesson 5

III

Directions: This is another lesson involving thinking as you type. First, you are to copy the following sentences exactly as they appear here. Then, when the sentences stop, you continue to type, filling in and making a story. You may type a story or an article about anything which these sentences suggest to you, but you must start with this opening.

(Note: Remember to space twice after periods placed at the end of sentences.)

Yesterday was a most unusual day in our town. It started out like any other day. Up until mid-afternoon everything was peaceful and quiet. Suddenly

Directions: Set a 60-space line with double spacing. Set a 5-space paragraph indentation. Copy the sentences below exactly as they appear. When the material below stops, you are to continue writing. See how good a story you can write.

It was a beautiful spring day. My best friend and I were out walking in the woods. We saw a huge old tree and decided to rest under it. We walked around it, but when we reached the other side

Directions: Set a 60-space line with double spacing. Set a 5-space paragraph indentation. Copy the sentences below exactly as they appear. When the material below stops, you are to continue writing. Write anything you desire, but try to connect it with the beginning given here.

Mother and father and I got in the car and started out. At last we were on our way! I was so excited that I could scarcely wait until we arrived at

Directions: Copy the sentences below exactly as they appear. When they stop, continue writing. Write whatever comes into your mind as a result of reading and typing these sentences. Use a 60-space line, double spacing, and a 5-space paragraph indentation.

The sunset was one of the most beautiful that I had ever seen.
It had been a wonderful day, and I was glad of all the things which
the day had brought. All day long

Directions: Type the sentences below. After copying these sentences continue to write any story or idea that the sentences bring to your mind. Use a 60-space line, double spacing, and a 5-space paragraph indentation. Also, use your imagination!

It was the day after my birthday and I was in a rush to get
started. My uncle had given me \$25 to spend however I wished. I
left the house and

UNIT IV

The typing of personal and business letters is introduced in this unit. The personal letter is presented first, and then the business letter. Students are asked to first study a sample of the letter, then type a copy of the sample letter, and then type two letters of the type being studied. The same basic style of letter is used for both the personal and the business letters.

Lessons 1 and 4 both consist of two pages each. The first page of each lesson contains a review of the parts of the letter, with notations about how each part is typed, and the second page contains a sample letter.

Lessons 2 and 3 and Lessons 5 and 6 are presented on one page (that is, two lessons are given on a single page). The sheet of paper may be cut in half and only one lesson given to students at a time if you desire.

Discussions should be held on the points noted at the bottom of the sample letters.

The sample letters are typed on 50-space lines. When students begin composing their own letters (in Lessons 2, 3, 5, and 6), some of them might write very long letters. If so, they should change to a 60-space writing line.

The materials on which the review of letter parts is based includes three fifth-grade language textbooks, one of which is used in your school system, and the elementary school curriculum guides of Upper Arlington (Ohio) and San Diego (California) public schools.

Lesson 1

Directions: You are already familiar with writing letters. Typed letters are not very different from those written in longhand. Below are listed the basic parts of typed personal letters.

1. The Heading: This contains the return address (street name and number, and city and state) and the current date. It is usually placed at least 6 lines from the top of the paper and slightly to the right of the horizontal center. The heading may be placed a little lower on the paper if the letter is very short.
2. The Salutation: This is also known as the greeting. It is the friendly greeting with which the letter is opened. In personal letters, a comma is usually placed after the salutation.
3. The Body: This is the part of the letter which contains the message. It usually has more than one paragraph in it. A new paragraph should be started when a new subject is written about in the letter. In typed personal letters paragraphs are usually indented five spaces.
4. The Closing: This is also known as the complimentary closing. It consists of one or more words used to courteously close the letter. In typed personal letters, the complimentary closing is started on the second line below the body of the letter and at the center of the writing line. A comma is usually placed after the complimentary closing.
5. The Signature: This is the signed name of the person writing the letter. In typed letters, the sender's name is also usually typed four lines below the complimentary closing and it is started at the center of the writing line (directly under the complimentary closing). When the name is typed in this manner, the signature should then be written between the complimentary closing and the typed name.

Study the model letter on the next page. Pay particular attention to the various parts which are described above.

Make a typed copy of the letter on the next page. Set up your machine for a 50-space writing line and single-spacing. Set a tab stop to indent five spaces (for the paragraphs) and another one at space #42 (for the complimentary closing and typed name). Type the heading about 8 lines down from the top of the page and about five spaces to the right of the center. Then, type the salutation six lines below the heading, starting on the left margin. See if you can make a perfect copy of this letter.

3778 Roxbury Road
Columbus 2, Ohio
April 10, 1961

Dear Jim,

This is the first time I have tried to type a letter. Our class has been studying typing since last October, and most of us are doing very well. In fact, most of us can type at least twice as fast as we can write with a pencil.

Typed letters are always single-spaced, unless they are less than eight or nine lines long. For most personal and business letters, a 50-space line will suffice. If the letter is especially long, a 60-space writing line may be used. This particular letter is typed on a 50-space line.

In typing letters, just as in typing stories, a new paragraph should be started with each change of thought or topic. Most paragraphs should contain more than just one sentence. Paragraphs are usually indented five spaces.

It is fun to type letters; most people prefer to receive typed letters, too, for they are easier to read. Don't you agree?

Sincerely,

Phil

A TYPED PERSONAL LETTER -- Notice the following points:

1. There is no inside address on a personal letter.
2. Each paragraph is indented 5 spaces and the letter is single-spaced except for a double-space between each paragraph and before and after the closing and after the salutation.
3. A 50-space line was used (Left margin was set at 17 and Right margin was set at 72 to include 5 extra spaces for the warning bell).
4. The closing was started at the center (space #42).
5. The name of the writer is typed 4 lines under the closing.

Directions: Type a personal letter to some friend of yours. In the letter, try to describe completely some activity which you are doing at school. Make the letter as interesting as possible. Try to put yourself in your friend's place and tell the kind of things which you would most enjoy reading about in a letter which you received.

Follow the style used in Lesson 1 of this unit.

Directions: Type a personal letter to the principal of your school. In the letter, describe your experiences this year in typing. Tell about how you learned to type, and then discuss what you have typed in your school work. Also, in your letter, tell your principal why you think all fifth-grade boys and girls should or should not study typing at school.

Follow the style used in Lesson 1 of this unit.

LESSON 4

IV

BUSINESS LETTERS

Directions: Typed business letters are very similar to typed personal letters. In addition to the parts of the personal letter which were described in Lesson 1 of this unit, there is one other part which business letters have. It is described below.

The Inside Address: This is used in all business letters. It is the name and complete address of the person or organization to which the letter will be sent. It is placed at the left margin, usually four or five spaces under the return address (heading). After the inside address is typed, a double-space is left and then the salutation is typed.

The Salutation: In business letters, this is slightly different from those in personal letters. It is typed a double-space beneath the inside address, but the words used are usually a little more formal than in personal letters. Such salutations as "Dear Sir" or "Dear Mr. Smith" are used when the letter is addressed to an individual person; when the letter is addressed to an organization (a company, for example), the salutation is usually "Gentlemen".

The Body and the Complimentary Closing used in business letters are the same as in personal letters.

The Signature: In business letters, the full name of the writer is usually typed four spaces beneath the complimentary closing, and the full name of the writer is usually signed.

Study the model business letter on the next page. Pay particular attention to the various parts which are described above, and notice the ways in which this business letter differs from the personal letter which you studied in Lesson 1 of this unit.

Type a copy of the letter on the next page. Follow the same line settings and tab stop settings that you did for Lesson 1. Try to make an exact copy.

3778 Roxbury Road
Columbus 2, Ohio
April 17, 1961

Remington Rand Typewriter Division
The Sperry Rand Corporation
315 South Park Avenue
New York 10, New York

Gentlemen:

Our class has been studying typing since last October and most of us are doing very well as typists. We are enjoying typing a great deal, for it enables us to do much more written work than we were able to do with pencils. Our work is also neater and easier to read.

As you know, we are using Remington portable typewriters. The model we use is the Quiet-Riter Eleven. We like it very much, but we are wondering what other models your company has available. Will you please send us a list of all the various models of portable typewriters which you manufacture. We thought it would be helpful to us to discuss the different models of typewriters.

Thank you for supplying this information for our class. We are anxious to learn more about typewriters.

Sincerely,

Sam Wanous
Sam Wanous

A TYPED BUSINESS LETTER -- Notice the following points:

1. There is an inside address.
2. The salutation used is "Gentlemen" because the letter is addressed to an organization instead of an individual.
3. The full name of the writer is used.
4. The length of writing line, paragraph indentions, and spacing between paragraphs is the same as in typed personal letters.

LESSON 5

151

IV

Directions: Type a business letter to the company shown below. Use the name and address of your school in the heading, and use the present date. Tell this company that your class is going to study a unit on Canada, and that you understand they have available a movie about the Royal Canadian Mounted Police. Ask them if they will lend the film to your class for a few days. If they cannot lend it, ask them if they rent it and if so, what rental fee do they charge. Type and sign your name as the writer of the letter. Address the letter to:

Coronet Films, Inc.
169 South Wabash Avenue
Chicago 14, Illinois

LESSON 6

IV

Directions: Type a business letter to the Remington Typewriter organization (their address is given below). They loaned the typewriters that you have been using in school. Thank them for making the machines available. In the letter, tell them whether or not you have enjoyed learning to type and what uses you are making of your typing ability. Tell them what you think of the model machine you are using. In this letter, as in all typed original work, be sure that all words are spelled correctly. If you are in doubt about a particular word, look it up in the dictionary. Address the letter to:

Remington Rand Division
The Sperry Rand Corporation
315 Park Avenue, South
New York 10, New York

APPENDIX B**Illustrations of the Typewriter in Fifth Grade**

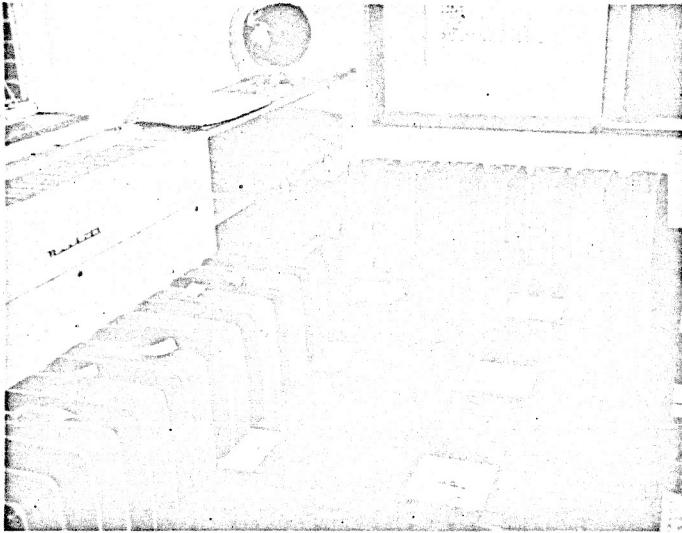


Figure 1.--Typewriters Stored in Classroom



Figure 2.--Typewriters Being Used on Flat-Top Desks

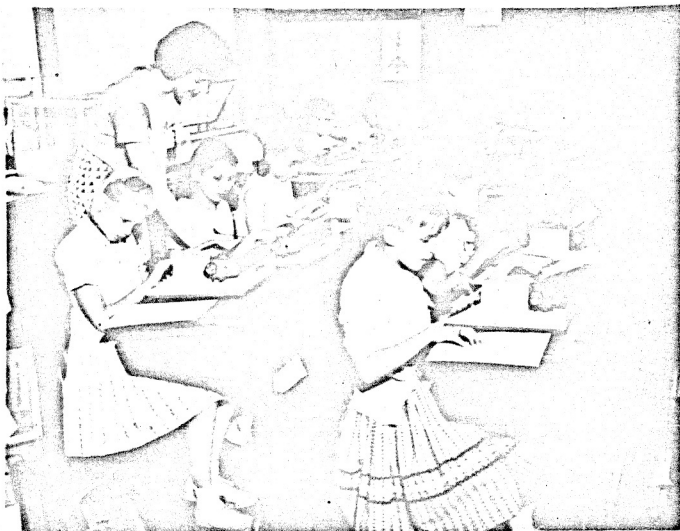


Figure 3.--Typewriters Being Used on Slant-Top Desks

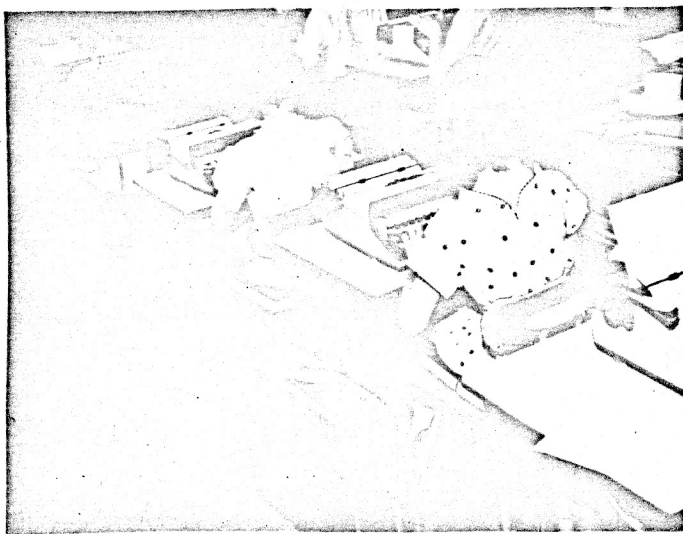


Figure 4.--Books Being Used to Increase
Height of Typists

APPENDIX C

Selected Samples of Creative Writing Produced
by Fifth-Grade Students on the Typewriter

Description¹

Jimmy D.

This person is 6 foot and 8 inches high. He is a good basket ball player. He plays for OSU. Hes the second best play in Big Ten in scoring points. He always makes most of the points on there team. The team is in first place. He has light brown hair. Who is it? (Jerry Lucas)

Description

Bill H.

This person is balled and has a very bad disposishion. He isn't from our country and is a very well known man in the U.N. He makes about 4 hour long speches. He doesn't like the Free World. He makes his people listen to his speches. He is getting Africa on his side. He says that Kennedy is a good preident. He is over wieght and is stuby.

Skiing

Dear Baboo,

I have a winter sport I like very much. It is sking. In the winter some people go sking. (I am one of those people) Sking is done in the snow. Snow is water, and when it gets cold enough it freezes to snow. To ski you have to boards (not exactly a board but similar to one) and you attach thease board like things to your feet and you have prongs that you push yourself with. The object to the game is to go down a hill without falling off. When you can do this you can ski! You get sprayed by the snow and it makes you cold like the water down in the South Pacific or like the soil (dirt) when it has been watered.

Another sport I like is sleding, you do this in the snow also. I have a sled thats made out of wood that is similar to a Surf board that you probly ride on the waters. The object of the sled is to go down a hill full speed on the sled. When you can you do this you are a good sled rider! Believe you me we have a lot of winter sports hear that are a lot fun. (Winter is cold wether like the soil after it has been watered which is very cold!)

Your American Friend,

Brenda G.

¹All materials in this Appendix are typed exactly as they were originally typed by students in the experimental classes. Only the spacing has been changed.

Ice-Skating

Dear Baboo,

My favorite sport is ice-skating. You do it in a time called winter. It is a time when great winds come and that there is no heat. You can tell what it feels like by waving large leaves over your face and then covering up yourself with large leaves so that heat can not come in.

To be able to ice-skate you have to have some sort of shoes with pieces of mettle on the bottom. (it would be nice if you could take a knife and sew it to the bottom of the shoe with the sharp side down)

When it gets cold enough your water will get hard. It will be very cold when you touch it. When it gets hard enough to stand on you can skate. To skate, you stand on your hard water and start to walk. All of a sudden you will be sliding. This is what you do when you skate.

There are all kinds of things you can do while you are skating. You can do a lot of tricks. One of them is trying to skate backwards. In doing this you have to try to run backwards. In skating, after you have started, you can try to sit down. Another hard thing to do is to skate with only one leg. The easyest way to do this is to starte skating and then lift one leg up.

Sincerely,

Beth N.

The Gravity Gives Way

Bob P.

Yesterday was a most unusual day in our town. It started out like any other day. Up until mid-afternoon everything was peaceful and quite. Suddenly the gravity gave way! It was when we were typing. All of a sudden my typewriter floated off my desk. Then everybodies typewriter floated off their desk. Then we started to float around. At first we don't know what was happening. But after a while we got used to it. Thats when it got fun. We were even typing in the air! Then the gravity came back. And a few of us grabbed onto the lights and I grabbed onto the loudspeaker. And the typewriters were right above our desks so that they landed right on them. Then it gave way again. Mrs. ---- went floating down the hall yelling out orders. The water in the bowl with fish floated around and the water came out in clumps with a fish in each one. Then the gravity came back.

THE END

Elmwood Becomes the Red Town!!

Tavia M.

Yesterday was a most unusual day in our town. It started out like any other day. Up until mid-afternoon everything was peaceful and quiet. Suddenly there was a yelp coming from little Mrs. Cobber's house. Everyone came running. Mrs. Cobber came running out of the house screaming HELP! My little girl, my little girl! She's got paint all over her! Then suddenly Mrs. Colley came out of her house screaming too! My little boy! He's all covered with paint.

Something was wrong. How could both children be covered with paint when they were in different houses? Mr. Ficklebee came running. My tank that keeps all my paint in it has broken and joined with the water tank. OH!!! Mrs. Cobber's house was all full of painty water because she had left the water going. Everyone pitched in and helped to clear the paint out but no one could get in to the faucet and soon the paint started to flow out onto the street! No one could stop it! Everyone's water faucet was in the same predicament! The whole town was soon flooded, not with water, with paint! Rescue committees came from all the surrounding towns. The fire department tried to help. It was hard work rowing through paint! All of the boats got a fresh cover of paint! A few of the boats tipped over! Mine among them.

Now we are all safe and sound in Simoa one of the towns near here. The paint finally wore down and men are trying to rescue the town. NOW OUR TOWN IS KNOWN AS THE RED TOWN!!!!

My Dream

Robin L.

It was a beautiful spring day. My best friend and I were out walking in the woods. We saw a huge old tree and decided to rest under it. We walked around it, but when we reached the other side we found that there were 7 huge black bears right in front of us. We were so frightened we just stood there staring. A few minutes later a large black crow flew right in front of our faces. That woke us up a bit. We ran and we ran, the bears right after us. Soon we came to a cliff. It was about 50 feet down with a lake at its end.

We looked in front of us, the cliff. We looked in back of us, the bears. On both sides were thorn bushes. We were TRIPPED! My friend cut herself on a thorn bush and suddenly disappeared. I tried it, the same thing happened.

Then I heard a loud crash, I woke up and found that it was only a dream!

VISITOR FROM PLANET XI

Sheila S.

It was a beautiful spring day. My best friend and I were out walking in the woods. We saw a huge old tree and decided to rest under it. We walked around it, but when we reached the other side, we stopped in sheer fright. It seemed unbelievable, but there before our eyes, we beheld a huge metal ball, at least, 20 feet in diameter. Standing beside it was a huge creature with grotesque features, not at all resembling man as we know him on this planet.

After our first fear of him had subsided, we walked closer in order to observe him within closer range. He was, approximately, eight feet tall, a large body, with dangling arms and legs which showed great strength.

Despite his unusual appearance, he seemed willing to be friendly with us and invited us to take a trip to his planet. We consented to go because of our curiosity and spirit for adventure.

Within a short time after we had entered the strange sphere, we were off into space and traveling at a tremendous rate of speed. As we were passing other planets, it gave us a strange sensation of weightlessness. We soon landed and found ourselves close to a baseball diamond and saw that the Yankees were playing the Baltimore Orioles. There was much excitement and we became spectators.

I woke up and found myself rooting for the Yankees. Right there and then, I decided never again to eat ice cream before going to bed!

THE
N
D

IF I WERE IN NEW YORK

If I were in New York I would go to one of their famous zoos. It, I think, is one of the fullest zoos I have ever seen. Of course, I would go on the subway. I hope I don't get in the rush hour! What! You don't know what the rush hours are? Well, you're lucky you've never been in one! People push, yell, and are full of panic. They hold the open doors when they are suppose to close. If you were in them you could scarcely breathe.

I would like to go to the harbor to see the boats come in, unload, and go out again. When I first came to Manhattan I saw the Statue of Liberty. I came in a Ferryboat called Pixie Ferryboat and it was much fun. And best of all I was there when an airplane knocked off the top of the Empire State Building. It's so fun here but now I have to go back home. Good-bye

Wendy K.

Danger over Niagara Falls

Paul R.

One day a daring young man started to tightrope walk over Niagara Falls. This man was about 6'4" tall he weighed about 200 pounds. He walked on a cable 2 inches thick. Why he did this was that the circus he was in needed money badly. Nobody (even the people in the circus) thought he would make the walk.

Finally the day came that he was to walk. I heard a late weather forecast before he was to walk. "Oh no" shouted the crowd the forecast says there will be a strong wind blowing over the falls. Nobody wanted the man to walk but he is starting. The wind blows the man starts to fall but the wind changed directions. The man gets his balance again but the wind is blowing furiously. The rope is getting weak but this man is about half way there (to the other side) but the rope broke. There under the rope lays a man falling down, down way down, but look he landed on a Maid of the Mist boat. The boat goes full speed ahead, the man fell on it. Now he was safe.

Oh what a day!

If I had a Wish

If I had a Wish
I'd be a fish.
If such a thing could be
I wish it would happen to me.

I'd want to be a fish
That had a lot of swish.
I really don't care about my size
Just so I have very big eyes.

This could go on for hours,
And hours and hours and hours.
But I hope this really dosen't come true,
Because I'd rather be here with you.

Sue Ann, C.

APPENDIX D

Special Spelling Tests Used in the Study

Form Used for Evaluating Creative Writing

Frequency of Use of Fitzgerald's 100 Spelling Boners

Frequency of Use of Rinsland's 500 Words Most Common to Fifth Grade

SPECIAL SPELLING TESTS

Test No. 1

1. am
2. because
3. cousin
4. don't
5. Feb.
6. friend
7. getting
8. good-by (or good-bye)
9. Halloween
10. here
11. Jan.
12. Mrs.
13. now
14. pretty
15. Saturday
16. sometimes
17. teacher
18. thanksgiving
19. their
20. time
21. today
22. too
23. very
24. write
25. you

Test No. 2

1. and
2. coming
3. didn't
4. everybody
5. for
6. from
7. going
8. guess
9. have
10. I'm
11. know
12. name
13. our
14. received
15. some
16. Sunday
17. teacher's
18. that's
19. there
20. to
21. tomorrow
22. two
23. we
24. writing
25. your

EVALUATION OF CREATIVE WRITING

Language Arts for Today's Children, prepared by The Commission on the English Curriculum of the NCTE, lists Ease, Clarity, Suitability, and Originality as basic goals in written and/oral language. The first of these can best be evaluated by observations made by the classroom teacher. The remaining three goals are briefly described below.

Clarity is first of all a matter of clear mental concepts and well-formed ideas. Clear thinking is essential to clear writing. Clarity in writing is dependent also upon the child's choice of words, the way he fits them together in sentences, his handwriting, his spelling, and his knowledge of how to place his thoughts on the paper so that others can read them.

Suitability is more important in writing than in speech. Children must learn to fit content to purpose. The formality or informality of writing determines how much of himself he can put into it. A major task of the middle grades is to help children learn to differentiate between situations and needs and to suit the techniques they use in both writing and speaking to those needs.

Originality and creativeness need to be preserved and fostered. Children should be taught to respect their own thinking and their own expression of it and to be themselves in writing as well as in face to face conversations. Such an attitude should not prevent clearing up any gross errors in usage that stand in the way of clarity.

The attached materials were written by fifth-grade students. Numbers lower than 50 indicate boys' writings and numbers above 50 indicate girls' writings. Students were given their choice of three topics on which to write, and wrote for 15 minutes.

[illegible]

FREQUENCY OF USE OF FITZGERALD'S 100 SPELLING BONERS

about 3	from 14	pretty 0	they're 0
address 3	getting 2	quit 9	think 0
all right 0	going 6	quite 3	thought 4
am 4	good-by 0	received 1	through 4
and 166	guess 2	right 0	time 19
anything 0	Halloween 2	Saturday 0	to 103
anyway 0	have 17	schoolhouse 2	today 6
are 37	haven't 0	sincerely 2	tomorrow 0
arithmetic 0	hear 0	some 8	tonight 0
awhile 0	hello 0	sometime 0	too 3
because 2	here 0	sometimes 6	truly 0
birthday 3	hospital 0	something 0	two 10
cannot 0	I'll 0	stationery 0	very 26
can't 0	I'm 0	studying 2	we 24
coming 1	isn't 0	Sunday 0	well 12
cousin 2	it's 0	suppose 0	we're 0
daddy 0	Jan. 0	sure 6	will 30
Dec. 0	know 5	teacher 6	won't 0
didn't 0	Mar. 0	teacher's 0	would 4
don't 1	Mr. 0	thanksgiving 2	write 5
everybody 0	Mrs. 5	that's 0	writing 3
Feb. 0	name 10	their 4	you 53
Friday 2	now 6	them 13	your 35
friend 4	o'clock 0	there 20	you're 0
friends 4	our 25	they 45	yours 1

FREQUENCY OF USE OF RINSLAND'S 500 WORDS MOST COMMON TO FIFTH GRADE

a 137	ask 20	book 8	church 0
able 5	asked 4	books 4	city 6
about 3	at 23	born 2	class 9
across 0	ate 4	both 8	clean 2
address 3	aunt 0	bought 2	close 4
after 11	away 0	box 0	clothes 0
afternoon 3	baby 2	boy 6	club 0
again 0	back 0	boys 8	cold 0
all 38	bad 8	bring 1	come 8
almost 4	ball 0	broke 0	comes 0
along 10	be 23	brother 0	coming 1
also 12	beautiful 10	brought 1	corn 4
always 13	because 2	but 19	cotton 0
am 4	bed 4	buy 0	could 7
an 12	been 3	by 17	couldn't 0
and 166	began 0	called 6	country 6
another 2	before 0	came 0	cousin 2
answer 0	best 23	can 39	cows 4
any 23	better 2	candy 0	cut 4
anything 0	big 18	can't 0	dad 13
April 1	bird 0	car 7	daddy 0
are 37	birds 0	cat 4	day 25
arithmetic 0	birthday 3	card 0	days 0
around 1	black 6	children 0	dear 1
as 30	boat 4	Christmas 1	decide 3

did 8	everything 1	Friday 2	grandmother 0
didn't 0	eyes 2	friend 4	great 11
died 4	family 0	friends 4	ground 0
different 3	far 8	from 14	guess 2
dinner 0	farm 0	front 0	had 24
dishes 0	father 1	fun 7	hair 6
do 37	Feb. 0	game 0	half 0
does 12	feeling 2	gave 4	happy 0
dog 7	feet 2	geography 0	hard 0
doing 2	fell 4	get 1	has 21
doll 4	few 4	gets 2	have 17
dollar 3	fifth 0	getting 2	haven't 0
done 0	finally 0	girl 16	having 0
don't 1	find 0	girls 10	he 16
door 0	fine 9	give 21	head 0
down 2	fire 0	glad 3	hear 0
dress 4	first 3	go 12	heard 2
each 20	fish 0	goes 4	hello 0
early 0	fishing 0	going 6	help 16
eat 0	five 1	gone 2	her 20
eggs 4	flowers 0	good 39	here 0
enough 0	food 11	good-by 0	high 6
evening 0	for 52	got 7	hill 0
ever 12	found 0	grade 4	him 5
every 6	four 4	grandfather 0	history 2

hit 10	king 2	lots 0	Mr. 0
home 4	knew 2	love 4	Mrs. 5
hope 0	know 5	made 8	much 6
horse 0	land 0	make 5	music 0
house 11	large 0	making 0	must 6
how 11	last 5	mama 0	my 7
hundred 2	later 2	man 27	name 10
hurt 0	leaves 0	many 10	named 0
I 24	left 1	March 0	near 1
ice 20	lessons 0	may 8	never 2
if 17	let 6	me 7	new 8
I'll 0	letter 3	men 6	news 0
I'm 0	letters 5	might 2	next 0
in 44	life 6	miles 0	nice 12
interesting 0	like 20	milk 0	night 2
into 12	liked 0	mine 0	no 2
is 66	little 6	Miss 0	now 19
isn't 0	live 10	miss 0	nothing 0
it 59	lived 2	Monday 0	now 6
it's 0	long 8	money 0	o'clock 0
I've 0	look 11	month 0	of 80
just 8	looked 0	more 3	off 11
keep 2	looking 2	morning 0	oh 0
killed 4	lost 0	most 28	old 14
kind 0	lot 4	mother 1	on 20

once 6	put 12	see 20	spring 1
one 28	quite 3	seen 1	start 0
only 8	radio 0	send 3	started 4
or 70	ran 4	sent 0	stay 2
other 14	read 23	set 6	stayed 0
our 25	reading 4	she 19	still 0
out 16	ready 0	shoes 0	stop 0
over 6	real 11	should 11	store 4
pair 0	received 1	show 0	story 1
paper 2	red 12	sick 0	street 0
part 0	rest 3	side 5	study 6
party 0	ride 0	since 4	studying 2
people 9	riding 0	sister 0	such 2
picture 0	right 0	six 4	summer 0
pictures 0	river 0	sled 7	Sunday 0
piece 0	room 0	sleep 0	supper 0
place 2	run 4	small 2	suppose 0
play 10	running 0	snow 12	sure 6
played 0	said 9	so 19	surely 0
playing 0	same 0	some 8	swimming 8
please 1	Santa Claus 2	something 0	table 2
poor 4	Saturday 0	sometimes 6	take 4
presents 0	saw 3	soon 4	teacher 6
pretty 0	say 6	sorry 0	teacher's 0
P. S. 0	school 18	spelling 0	teaching 0

tell 2	together 0	very 26	white 0
ten 0	told 1	visit 4	who 20
than 17	tomorrow 0	walk 9	why 8
thank 1	tonight 0	walking 1	will 30
thanksgiving 2	too 3	want 0	window 0
that 25	took 2	wanted 0	winter 2
the 153	top 4	war 8	wish 1
their 4	town 1	warm 0	with 9
them 13	toys 0	was 38	won't 0
then 6	train 0	wasn't 0	wood 3
there 20	tree 1	watch 4	work 8
these 6	trees 0	water 0	world 10
they 45	tried 1	way 13	would 4
thing 5	trip 0	we 24	write 5
things 1	truly 0	weather 2	writing 3
think 0	try 10	week 4	wrote 0
this 15	two 10	weeks 0	yard 0
thought 4	uncle 3	well 12	year 9
three 1	under 1	went 12	years 4
through 4	until 2	were 7	yes 4
till 0	up 7	what 12	yesterday 1
time 19	us 16	when 23	yet 0
times 0	use 13	where 10	you 53
to 103	used 5	which 11	your 35
today 6	vacation 0	while 6	yours 1

APPENDIX E

Tables Depicting Details of Statistical Treatment of Data

TABLE 15

TEST SCORES BEFORE AND AFTER USE (EXPERIMENTAL GROUP) AND NON-USE (CONTROL GROUP)
OF TYPEWRITER BY 48 MATCHED PAIRS OF FIFTH-GRADE STUDENTS, 1960-1961

A R E A	M E A N		STANDARD DEVIATION		COEFFICIENT OF VARIATION							
	Experimental Before After	Control Before After	Experimental Before After	Control Before After	Experimental Before After	Control Before After	Experimental Before After	Control Before After				
Spelling	23.60	23.13	23.58	22.96	1.75	1.73	1.58	1.65	7.40%	7.50%	6.71%	7.19%
Handwriting Speed	11.65	16.85	11.54	13.40	3.53	3.22	2.83	2.76	30.35	19.08	24.50	23.90
Handwriting Quality	71.98	78.96	71.04	75.83	6.17	5.83	5.36	5.29	8.57	7.38	7.54	6.98
Science	6.62	7.86	6.53	7.61	1.12	1.42	1.34	1.46	16.96	18.10	20.45	19.21
So.St.Information	6.21	7.13	6.30	7.83	1.78	2.01	1.74	1.77	28.61	28.22	27.57	22.64
So.St.Study Skills	6.24	8.49	6.37	8.09	1.61	1.82	1.53	1.90	25.78	21.41	24.00	23.54
Reading	6.39	7.59	6.29	7.46	1.06	1.25	1.22	1.24	16.62	16.42	19.44	16.64
Arithmetic	5.65	7.29	5.68	7.05	0.61	0.85	0.48	0.72	10.81	11.63	8.37	10.27
Creative Writing	6.21	7.54	6.06	6.94	1.43	1.18	1.45	1.46	23.01	15.70	23.92	21.11

SOURCE: Tables 5 through 14 and computations.

TABLE 16

DIFFERENCES IN MEANS OF TEST SCORES BEFORE AND AFTER USE (EXPERIMENTAL GROUP)
AND NON-USE (CONTROL GROUP) OF TYPEWRITER BY 48 MATCHED
PAIRS OF FIFTH-GRADE STUDENTS, 1960-1961

LEVEL OF SIGNIFICANCE TESTED BY USE OF STUDENT'S "t"
(To Nearest Thousandth)

A R E A	MEAN GAIN AFTER EXPERIMENT		STANDARD DEVIATION		OF GAINS		OF MEAN GAIN		STANDARD ERROR		ESTIMATED VALUE		LEVEL OF SIGNIFICANCE	
	X	C	X	C	X	C	X	C	X	C	X	C	X	C
Spelling	-0.479	-0.625	1.713	1.734	0.247	0.250	-1.938	-2.498	*	2.0%				
Handwriting Speed	5.208	3.854	3.087	2.953	0.446	0.426	11.689	9.041	0.1%	0.1				
Handwriting Quality	6.979	4.792	5.811	4.722	0.839	0.682	8.321	7.031	0.1	0.1				
Science	1.248	1.077	1.008	1.141	0.146	0.165	8.575	6.542	0.1	0.1				
So.St.Information	0.919	1.525	1.384	1.278	0.200	0.184	4.600	8.268	0.1	0.1				
So.St.Study Skills	2.250	1.721	1.798	1.817	0.259	0.262	8.671	6.561	0.1	0.1				
Reading	1.204	1.169	0.596	0.759	0.086	0.110	13.996	10.663	0.1	0.1				
Arithmetic	1.642	1.369	0.680	0.559	0.098	0.081	16.732	16.966	0.1	0.1				
Creative Writing	1.333	1.374	0.875	1.579	0.198	0.228	6.726	3.838	0.1	0.1				

*Not significant at 5% level.

SOURCE: Tables 5 through 14 and computations.

NOTE: All standard errors have been checked by means of formula: $\sigma_{\bar{A}-\bar{B}} = \sqrt{\sigma_A^2 + \sigma_B^2 - 2r_{AB}\sigma_A\sigma_B}$
Where $\sigma_{\bar{A}-\bar{B}}$ is the standard error of the difference of two means when the data have been paired or matched. σ_B is the standard error of the mean of test scores before the experiment; σ_A is the standard error of the mean of the test scores after the experiment; and r_{AB} is the Pearsonian coefficient of correlation between the test scores before and after the experiment for the group.

TABLE 17

DIFFERENCES BETWEEN MEANS OF GAINS OF TEST SCORES BEFORE AND AFTER
USE (EXPERIMENTAL GROUP) AND NON-USE (CONTROL GROUP) OF
TYPEWRITER BY 48 MATCHED PAIRS OF FIFTH-GRADE
STUDENTS, 1960-1961

LEVEL OF SIGNIFICANCE TESTED BY STUDENT'S "t"
(To Nearest Thousandth)

A R E A	MEAN OF X - C*	VALUE FOR "t"	LEVEL OF SIGNIFICANCE
Spelling	0.146	0.415	**
Handwriting Speed	1.354	2.196	5%
Handwriting Quality	2.188	2.024	5
Science	0.171	0.777	**
So.St.Information	-0.606	-2.230	5
So.St.Study Skills	0.529	1.434	**
Reading	0.035	0.139	**
Arithmetic	0.273	2.149	5
Creative Writing	0.458	1.517	**

*Mean of the gains of the experimental group minus the gains
of the control group.

**Not statistically significant at 5% level.

SOURCE: Tables 5 through 14 and computations.

AUTOBIOGRAPHY

I, John C. Tootle, was born in Glennville, Georgia, March 26, 1924. I received my secondary-school education in the public schools of Glennville, Georgia. My undergraduate training was received at Brigham Young University and Georgia Teachers College (now Georgia Southern College). The latter institution granted me the Bachelor of Science degree in 1956. George Peabody College for Teachers granted me the Master of Arts degree in 1957. I taught part time in the junior high school in Glennville, Georgia, in 1954, and part time in the Peabody College high school in 1956-1957. From 1957 until 1959 I taught in San Diego High School and San Diego Junior College, San Diego, California. From 1941 until 1954 I held various clerical and administrative positions in private industry, and spent four years as an officer in the United States Army. In 1959 I received an appointment as Instructor, part time, at The Ohio State University; I held that position while completing requirements for the degree Doctor of Philosophy.